

**THE STRUCTURE  
OF THE  
AMERICAN ECONOMY**

**PART I. BASIC CHARACTERISTICS**

**JUNE - 1939**

**NATIONAL RESOURCES COMMITTEE**





Abel Wolman  
October 1939

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# THE STRUCTURE OF THE AMERICAN ECONOMY

## PART I. BASIC CHARACTERISTICS

A REPORT  
PREPARED BY THE INDUSTRIAL SECTION  
UNDER THE DIRECTION OF  
GARDINER C. MEANS

JUNE 1939

NATIONAL RESOURCES COMMITTEE

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NATIONAL RESOURCES COMMITTEE  
NORTH INTERIOR BUILDING  
WASHINGTON

June 9, 1939.

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: We have the honor to transmit herewith a report on "The Structure of the American Economy", prepared under the direction of our Industrial Committee by Dr. Gardiner C. Means and his staff. This document is the first major attempt to show the inter-relation of the economic forces which determine the use of our national resources. It indicates some of the problems which must be faced and solved if we are to have reasonable use of our resources and full employment.

The members of the National Resources Committee wish to indicate their belief in the importance and value of this report as a stimulant to public discussion, and to further efforts for solution of the problems presented.

Sincerely yours,

HAROLD L. ICKES  
*Secretary of the Interior, Chairman*

HARRY H. WOODRING  
*Secretary of War*

HENRY A. WALLACE  
*Secretary of Agriculture*

HARRY L. HOPKINS  
*Secretary of Commerce*

FRANCES PERKINS  
*Secretary of Labor*

F. C. HARRINGTON  
*Works Progress Administrator*

FREDERIC A. DELANO

CHARLES E. MERRIAM

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HENRY S. DENNISON



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### ACKNOWLEDGMENTS

This report on the Structure of the American Economy was undertaken as a result of discussions between the Advisory Committee of the National Resources Committee and its Industrial Committee wherein emphasis was given to the need for a broader understanding of the national economy as a functioning whole. Its preparation would have been impossible without the prior work of the countless individuals who have contributed to the growing body of statistical data reflecting contemporary social and economic activity. Acknowledgment and appreciation are due especially to the Bureau of Internal Revenue in the Treasury Department, the Bureaus of Agricultural Economics and of Home Economics in the Department of Agriculture, the Bureaus of the Census and of Foreign and Domestic Commerce in the Department of Commerce, the Bureau of Labor Statistics in the Department of Labor, the Division of Research and Statistics of the Federal Reserve Board, the Research and Statistics Section of the Securities and Exchange Commission, the National Research Project of the Works Progress Administration, the National Bureau of Economic Research, and the Harvard University Committee on Research in the Social Sciences for making available unpublished data and in many cases giving advice as to its significance. In addition to the acknowledgment due to the technical staff who assembled and organized the data and to the contributors to the statistical appendix who filled important statistical gaps, acknowledgment is due to Dr. A. F. Hinrichs and Mr. Louis Bean for serving as alternates to members of the Industrial Committee and for providing valuable criticism, to Dr. Hildegard Kneeland for criticism of the chapter on the structure of wants, to William R. Muench who supervised most of the statistical computations, and to Charles Faunce, who with the assistance of Norman F. Hampton, was responsible for the drafting of charts.

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## PREFACE

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Earlier reports of the National Resources Committee and its predecessors have examined the Nation's material resources of land, water, and minerals; the changing character of the population which seeks to utilize these resources; and the improving engineering techniques whereby resources are used to serve human wants. In each of these reports a major aspect of the national household has been sketched in with a greater or less degree of detail in order to give a background for the development of major national policies and to provide a larger frame of reference within which specific problems in specific fields could be more intensively analyzed.

In this report on the Structure of the American Economy an effort is made to bring the major aspects of the national economy into focus so as to emphasize the organic character of the process whereby the Nation's resources are employed to provide useful commodities and services. This emphasis on organization requires that the national community be treated as a single functioning whole and in such a way that every phase of human activity is covered insofar as it involves the use of resources. Only by bringing all the different aspects of the national economy into a single frame of reference can a basis be laid for developing effective policies in respect to particular aspects.

This frame of reference is so broad in scope that it has been necessary to introduce certain limitations in order to keep the report within manageable proportions. The first of these is the concentration of the report on what have been called the structural characteristics of the national economy—those characteristics which show a high degree of continuity—changing only gradually or not at all and giving to the American economy its particular character. The second limitation is introduced by seeking out only what are believed to be the main structural characteristics, especially those which appear to be of major significance for the problem of obtaining more effective use of national resources. A third limitation has developed inadvertently. Certain major structural characteristics are not covered or are only very inadequately covered in the report. On some of these such as the trend of consumer savings, data are so completely lacking that they could not be included. Others were to be included according to the original plans for the report but the investigations necessary to their inclusion were incomplete or inadequate to allow their inclusion without unwarranted delay in publication. The most serious omission of this sort is an analysis of the debt and ownership structure and the structural aspects of interest rates. Such gaps are indicated at the appropriate points in the text. In spite of its shortcomings, the report is presented in the hope that it can give added background for the development of national policies respecting the use resources.

NATIONAL RESOURCES COMMITTEE

NORTH INTERIOR BUILDING

WASHINGTON

May 18, 1939.

MR. FREDERIC A. DELANO,  
*Chairman, Advisory Committee,  
National Resources Committee,  
Washington, D. C.*

DEAR MR. DELANO:

We have the honor to transmit herewith the report on the Structure of the American Economy requested by the Advisory Committee as background to an understanding of the basic national problem of unemployed resources.

The report has been prepared by a staff under the direction of Dr. Gardiner C. Means, who takes primary responsibility for the material presented and its detailed organization.

We wish to emphasize the central importance of insuring reasonably full use of resources. We believe that this report should help to clarify the character of this basic national problem.

Sincerely yours,

THOMAS C. BLAISDELL, JR., *Chairman*

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# THE STRUCTURE OF THE AMERICAN ECONOMY

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## CHAPTER I.—INTRODUCTION

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The American economy is the organized activity through which the 130 million people in this country obtain their daily living. Farmers raising food and fiber, miners extracting ore and coal, industrial workers fabricating raw materials into finished products, wholesale and retail distributors making goods available to consumers, and a host of workers performing the other countless tasks required by modern living, all of these are combined in a huge and highly complex producing organization which constitutes the national economy. Through this complex organization the Nation's resources of manpower and materials are used to satisfy human wants.

### The Complexity of Economic Organization

The complexity of this organization is apparent when a single activity such as the provisioning of New York City is examined. It is estimated that in the metropolitan area of New York there is seldom more than 60 days food supply on hand.<sup>1</sup> The meeting of this most basic need of the community requires a tremendously complex organization of farms and farmers, dealers and shippers, truckers and railroads, warehousemen and distributors, telegraph operators and traffic officers, financial institutions and inspection bureaus. To feed New York's 8 million people there is required an organization of manpower and material resources so complex as to be hard to visualize, yet running so smoothly that one is seldom conscious of its complexity or of the fact that it constitutes a single organization of activity, however independent the separate elements in that organization may appear to be. Occasionally a flood, storm or financial panic, or a social or technical break-down in a basic service disrupts this organization and its complexity becomes apparent as mayor or governor or private citizen attempts to readjust the organization of resources to meet the new conditions.

Similarly, for the Nation as a whole, the manpower and material resources are organized in a highly complex, highly interrelated manner. New Yorkers make clothing worn in Dakota; the Dakota wheat farmer supplies California with the materials for bread; transient labor in California picks oranges eaten in Texas; a Texan drills for oil which will operate automobiles in Maine; and a Maine farmer raises potatoes which feed men in New York. It is through such interrelated activity in many areas and many industries that the American community obtains its livelihood.

This highly complex organization, built up over a long period of years with constant readjustment to meet new conditions, is altogether too complex for any individual or small group to grasp in all its ramifications and in every detail. Yet it ties together, into an integral whole, individuals and corporations and governments, each of which performs functions that are necessary if the resources of the Nation are to yield a satisfying standard of living to the national household of 130 million people.

### Failure to Use Resources Effectively

It is inevitable that such a complex organization of human activity should fail to function perfectly. Resources are wasted or used ineffectively as parts of the organization get out of adjustment with each other, or as the organization fails to adjust to new conditions; as individuals fail to find, or are prevented from finding, the most useful field of activity; as material resources are unused, or as their effective use is impeded by human barriers; and as the most effective technology is not used or its use is prevented.

The waste of natural resources through misuse, or ruthless exploitation, is thoroughly familiar. The cutting of forests in a manner which delays or prevents reforestation, the farming of lands by methods which mine the soil of its fertility and encourage soil erosion, the extraction of petroleum by methods which blow into the air billions of cubic feet of natural gas daily,<sup>2</sup> these are specific resource wastes to which attention has already turned and which reflect inadequacies in our organization of resources.

Equally important, but less often thought of as a waste of resources, is the idleness of men and machines that could be productively employed. The power of individuals to produce is a resource like unharnessed water power. It is gone if it is not employed. It cannot be stored. If 10 million men are able and willing to work, but are forced to be idle for a year by lack of jobs, the community has wasted the valuable resources of manpower. And because of idleness, the individuals are likely to suffer a loss of skill and a breakdown of morale. The Nation is poorer both by the goods that could have been produced and by the frustration and loss of morale of the unemployed individual.

Idle machinery may also involve a waste of resources. When machinery is idle and accumulating rust or losing

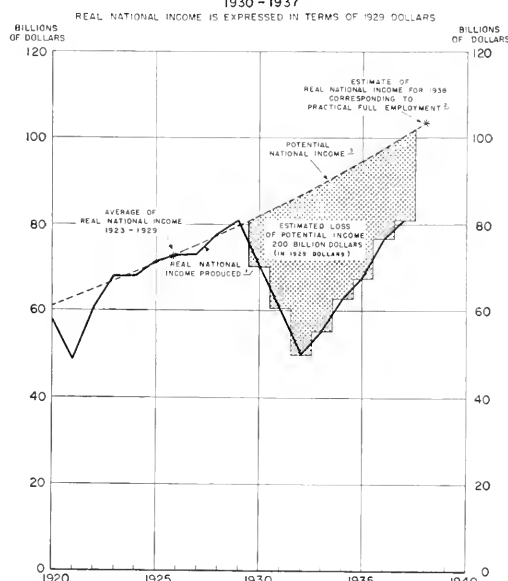
<sup>1</sup> See appendix 18, p. 370.

<sup>2</sup> See *Report of National Resources Board*, December 1, 1934, p. 406.

usefulness through becoming obsolete, when idle men are available to operate it and when its product would be useful to the community, its idleness is likely to constitute ineffective use of resources.<sup>3</sup> Digging a large building foundation with pick and hand shovel and leaving an available steam shovel idle may not be as wasteful of resources as keeping both men and shovel idle, but it nevertheless involves waste. Waste is also involved when obsolete equipment uses more manpower and materials in doing a particular job than would be

<sup>3</sup> Standby equipment may, of course, be idle without involving waste of resources. Also, it should be noted that if a machine will be as much reduced in usefulness at the end of a year (or any period of time) regardless of whether it is used or left idle, a year's use of the machine is wasted by keeping it idle. Only where the machine will lose usefulness less rapidly by being idle than by being used is the waste from idleness likely to be less than the full use of the machinery. Likewise, when the machine will lose usefulness more rapidly if kept idle than if used, the waste through idleness may be more than the full current use of the machine. It should also be noted that an idle machine may not involve a waste of resources even when idle men are available to operate it and its product would be useful, if a superior machine is also idle or if a sufficiently superior machine could be built.

CHART I  
LOSS IN POTENTIAL REAL NATIONAL INCOME  
DUE TO DEPRESSION UNEMPLOYMENT  
OF MEN AND MACHINES  
1930-1937



Source: See appendix 18, section 2.

<sup>1</sup> Real national income is the national income produced as estimated by the National Bureau of Economic Research and the Department of Commerce, deflated by an index of goods prices computed by the National Bureau and representing both capital and consumer goods prices.

<sup>2</sup> See appendix 18, sec. 2.

<sup>3</sup> Derived by connecting the average of real national income, 1923-29, with the estimate of real national income for 1938 corresponding to practical full employment with a compound interest curve. (For the purpose of this chart practical full employment was assumed to involve a residual unemployment of 2 millions.) See Appendix 18, sec. 2.

required if improved techniques were employed, or when production is divided among so many plants in an industry that no plant can have enough volume to run efficiently. In all of these cases, failure to use the best-known technology consumes manpower or materials that might be released to be used elsewhere.

### Magnitude of Wastes

The waste of resources from these three sources, ruthless exploitation, idleness of men and machinery, and failure to use the most effective known technology, all combine to give a tremendous total of wasted resources. How great this waste is it is impossible to estimate, but some suggestion of its magnitude can be given by estimating a single item: the depression loss in income through idleness of men and machines during the last 8 years. Chart I shows the estimated real income of the United States from 1920 to 1937, stated in 1929 dollars. The dashed line gives a crude estimate of what the real income would have been in the years after 1929 if there had been no depression following that year and economic activity had expanded to absorb the increased labor force which became available. This line is obtained by drawing a smooth curve between the point on the chart representing the average real income from 1923 to 1929 and the point representing the estimated real income which would have been produced in 1938 if all but 2 millions of the available labor force had been employed.<sup>4</sup> The shaded area indicates the discrepancy between the national income actually produced from 1929 to 1937, and the income which would have been produced if production had continued to increase at a rate sufficient to absorb the increase in the total labor force. While no calculation can give a precise figure for the depression loss in income due to the idleness of men and machines, the figures do suggest that this loss through nonproduction was in the magnitude of 200 billion dollars worth of goods and services. Most of this represents sheer waste, though to some extent it reflects a smaller depletion of natural resources.

The significance of this figure of 200 billion dollars is hard to grasp, but some idea can be obtained by considering what 200 billion dollars would mean in terms of concrete goods. If all the idle men and machines could have been employed in making houses,

<sup>4</sup> Based on an estimate made in *Patterns of Resource Use*, National Resources Committee, 1938. See appendix 18, p. 371.

The annual rate of growth in potential national income indicated above is approximately 3 percent a year, whereas the rate maintained fairly uniformly from 1880 to 1930, as shown in chapter V, chart 1, was approximately 3.5 percent a year. The latter figure is consistent with the rates found in other studies. E. E. Day and W. P. Persons estimated the annual rate of growth in total national production from 1870 to 1930 at 3.7 percent. G. F. Warren and F. A. Pearson estimated the same annual rate of growth for the same period. Arthur F. Burns, furthermore, finds no evidence of a significant retardation in the rate of growth from 1870 to 1930. (See A. F. Burns, *Production Trends in the United States Since 1870*, N. Y., pp. 263, 280.) This makes 3 percent per year since 1930 reasonably conservative.

the extra income would have been enough to provide a new \$6,000 house for every family in the country. If instead, the lost income had been used to build railroads, the entire railroad system of the country could have been scrapped and rebuilt at least five times over. Of such is the magnitude of the depression loss in income through failure to use available resources. It meant a lower standard of living for practically every group in the community.

Even in the nondepression years there was extensive idleness of men and machines which could have been used had there been adequate organization. The Brookings Institution has estimated that in the peak year 1929 both production and national income could have been increased 19 percent by merely putting to work the men and machines that were idle in that year even without the introduction of improved techniques of production.<sup>5</sup> While it is not possible to establish such a figure with perfect accuracy, its magnitude suggests a very real waste of resources.

Wastes through the failure to use the best techniques of production and through faulty exploitation of natural resources likewise contribute their quota to the total waste. Few have attempted to make estimates in this highly uncertain field, but there can be little question of the magnitude of resource waste through using less than the best techniques and through faulty use of natural resources.

### The Impact of Waste

The full meaning of this failure to use resources effectively can only be realized by considering its impact upon individuals. Practically every individual in the community suffers as a result of these wastes. When the national income is 60 billion instead of 90 billion dollars, the worker suffers a lower income through unemployment or partial employment or through wage rates lower than resources make possible; the farmer receives a lower income because of a reduced home market; the return on capital is reduced as a result of the partial use of equipment and the resulting increase in unit costs. For each group in the community this waste of resources means a lower standard of living than would clearly be possible.

Even more basically significant is the individual frustration resulting from the inability to find an effective use for one's skills. Without the satisfaction of useful activity, without the sense of security in a job well done, most men lose some of their self-reliance and some of their ability to be productive.

Moreover, as people become increasingly aware of the discrepancy between rich resources and poor results in living and as the ineffectiveness in the organi-

zation of resources becomes more clear, a sense of social frustration must develop and be reflected in justified social unrest and unavoidable friction. Individual frustration builds into social frustration. And social frustration is quite as likely to work itself out in socially destructive as in socially constructive ways.

### The Opportunity

At the same time this waste of resources presents a tremendous opportunity. Such resources hold the promise of a much higher standard of living than is now being obtained and present a challenge to this country, as a national household, to work out their effective use. It is a surprising comment on a Nation that prides itself on its skill in organization, in administration, and in management that such tremendous waste of resources can occur. The abundance of natural resources and the continental pioneering that has been necessary for their development may in part account for the past waste. With the continent spanned, the frontier shifts from the bringing of new resources into control to the more effective use of the resources already controlled. Here is the great challenge of today.

How long this opportunity will be open to the American democracy involves a serious question. The opportunity for a higher standard of living is so great, the social frustration from the failure to obtain it is so real, that other means will undoubtedly be sought if a democratic solution is not worked out. The time for finding such a solution is not unlimited.

### Stating the Problem

This problem, the basic problem facing economic statesmanship today, can be stated as follows: How can we get effective use of our resources, yet, at the same time preserve the underlying values in our tradition of liberty and democracy? How can we employ our unemployed, how can we use our plant and equipment to the full, how can we take advantage of the best modern technology, yet in all this make the individual the source of value and individual fulfillment in society the basic objective? How can we obtain effective organization of resources yet at the same time retain the maximum freedom of individual action? This is a problem so large that no solution is likely to be arrived at except over a period of years and through the efforts of many people.

### Nature of this Report

This report attempts to delineate the essential structural characteristics of the American economy. Its aim is to clarify the problem of achieving effective use of resources, not to offer any solution. It seeks to provide a background for attempts at solution and to call

<sup>5</sup> *America's Capacity to Produce*, Brookings Institution, p. 422.

attention to certain implications of the structure of the economy in a direction which efforts at solution might take.

Knowledge of structure becomes imperative when any organization or machine fails to run properly. The characteristics of any machine can be roughly grouped into its structural characteristics and its operating characteristics. So long as a machine runs well, its operating characteristics are all important, and its structure can be largely taken for granted. In order to drive an automobile it is enough to know how to manipulate the operating controls such as the starter, throttle, clutch, steering wheel, and brake. But when the machine fails to operate properly a knowledge of its essential structure is necessary in order to make the appropriate adjustments.

So also with the national economy; as long as it runs reasonably well, a knowledge of its structure is of secondary importance. Individuals, enterprises, and governments can continue to adopt the operating policies that have been found to work successfully in the past. But when it fails to run well, knowledge of its structure becomes of vital importance. Only as both its structure and the operating policies being adopted are clearly understood can faulty functioning be corrected.

Yet to talk of the characteristics of the national economy in terms of an analogy to a machine is to lose sight of the dynamic characteristics of both the economic structure and the multitude of separate decisions which together make up operating policy. The economic structure is constantly changing, sometimes gradually as consumer wants gradually shift or as new inventions are gradually developed and put into use, and, like the automobile or radio, call for new production arrangements; sometimes rapidly as a wave of mergers rapidly alters the industrial scene or as a new impetus is given to labor organization by a shift in public policy. Likewise operating policies are subject to constant modification as new conditions and opportunities develop. Both structure and operating policies interact on each other and each to some extent conditions the other. Often they cannot be clearly separated from each other. Yet their separation is important because, as a result of their dynamic character, they can develop in such a way that the operating policies and the structure are not compatible with each other. Just as the operating policies which are effective with a horse and buggy are not effective when the latter is replaced by the automobile, so the operating policies appropriate to one economic structure may not be effective when that structure has become significantly altered. The faulty functioning of the American economy necessarily raises the question of whether the present operating policies and the present economic structure are compatible with

each other. A clear delineation of the essential structure of the American economy is a first step toward answering this question.

Such an analysis of the economic structure is not only made necessary by the depression in economic activity which followed 1929 but is greatly aided by that depression. The rapid drop in national production from a value of over 80 billion in 1929 to under 50 billion<sup>6</sup> 3 years later, and the very considerable recovery since that time, give the economic analyst what is almost equivalent to a laboratory experiment on the basis of which many structural characteristics may be observed. The violence of the change, and the fact that production was almost as high at the end as at the beginning of the period, make certain structural characteristics stand out, just as a high wind brings out the structural difference not evident on a windless day between the tree that bends to the wind and that which stands unbending. Without the data of the depression years it would be much more difficult to recognize the structural characteristics of the national economy.

In order to be effective, an analysis of the economic structure must treat the American economy as an integral whole—as a going concern. To treat only certain activities is to lose the essential unity of all the separate and interrelated activities which make up the whole. Yet the American economy in all its structural aspects involves such a complex and ever-changing system of relationships that it could not be set forth in detail in a single report, however extensive that report might be. The most that can be done in treating the structure of the American economy in a single report is to set forth the structure only in its broadest outlines, emphasizing those elements of structure which appear most significant to the effective functioning of the whole economy.

Even when approached in the broadest terms, reliable data with which to block in the economic structure are missing at many points. Because completeness of the outline has seemed more important than a high degree of precision, crude estimates such as that for the total national wealth sometimes have been used where they are derived from the best data available. In such cases the reader has been warned of their crudity. At a few points even the basis for making crude estimates is lacking and a significant gap appears in the outline of the structure. The lack of adequate data means that at many points the outline of the economic structure in this report is only approximate, leaving to future analysis the task of bringing greater precision.

In this report the structure of the American economy will be examined under three main heads. First, the economic bases for production will be considered—the wants calling for satisfaction and the resources available

<sup>6</sup> Both expressed in 1929 dollars.

for use in filling wants. Second, the structure of production through which resources are used to fill wants will be discussed in its geographical, its functional, and its financial aspects. Third, the influences which give organization to the activity of the millions of separate individuals composing the American economy will be considered with particular emphasis on the market mechanism and administration.

For purposes of presentation it is necessary to make some such break-down as this. It should be remem-

bered, however, that the structure of the economy is a single entity. Each chapter involves an examination of one *aspect* of this whole rather than a *part* of the whole. The report is not made up of a series of pieces which fit together like a puzzle but of a series of *different points of view* from which to consider one thing, the structure of the economy. In spite of a certain amount of inevitable repetition, this is the only way in which it is possible to view the structure of the whole economy as a going concern.



## CHAPTER II.—THE STRUCTURE OF WANTS

Basic to the structure of the American economy are the wants of consumers. Food, clothing, shelter, education, transportation, and a host of other items are sought by consumers. To the extent that consumers have the power to make their wants effective, these wants are reflected in economic activity. The character and proportioning of these wants influences production and contributes to the structure of the whole economy.

### Consumer Wants

The main characteristics of consumer wants are reflected in the way consumers apportion their expenditures. If consumers have the same amount of money to spend at one time as at another, but spend more on automobiles and less on food and shelter, this may reflect a shift in consumer wants. When consumers have less to spend the items which they forego are presumably those which they want less strongly. Thus, by examining the pattern of consumer expenditure in the past and the consumption from year to year of certain types of goods it is possible to discover the outline of what might be called the "structure of wants."

The pattern of consumer wants is not, of course, fixed and immutable, but is continually changing under the impact of fashion, advertising, education and new goods coming into use. Within limited periods of time, however, changes in the pattern of wants are largely changes in detail, not in the basic structure of wants as they relate to major categories of activity.

While consumer expenditure is the most important

channel through which consumer wants influence production, it is not the only one, and some account must be taken of the wants reflected through other channels. The three most important cases of this sort occur in (1) production at home for home use, (2) Government services supplied without any direct charge but financed for the most part out of taxes and (3) group expenditure by consumers combined in such bodies as churches, hospitals, and similar consumer institutions. By placing money values on food raised for home consumption and on shelter obtained from owned homes, these, the two most important items of home production, can be combined with purchased goods in analyzing consumer wants. The services rendered free by Government and by consumer institutions cannot be converted into the equivalent of private expenditure and can best be treated as reflecting wants which are met through social expenditure. These social expenditures are relatively small in comparison with all expenditures, so that the main elements of the structure of wants are to be found in the analysis of private expenditures.

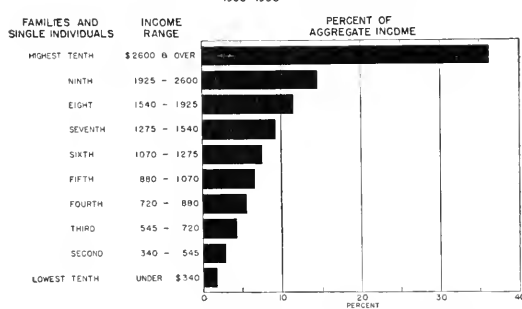
All consumers are, of course, not equally able to express their wants in the market. Significant differences between different groups of consumers can be brought out in two related maps. Map 1 shows the distribution of all consumers, regardless of their ability to make their wants effective. In map 2 these same consumers are weighted by their purchasing power—by their ability to express their wants in terms which affect the direction of economic activity. From this map it will be seen that urban consumers are on the whole more economically articulate than rural ones<sup>1</sup> and in particular that the wants of consumers living in the northeast section of the country and on the west coast are more effectively expressed in purchasing power than are the wants of consumers in some parts of the South.

The distribution of the total consumer income in 1935-36 is shown by tenths in chart I, from the highest tenth with incomes of \$2,600 and over a year, to the lowest tenth with incomes under \$340. Obviously, the wants of consumers at the upper income levels can be more effectively expressed than the wants of those at the lower level.

The actual expenditures which direct production, however, reflect primarily the wants of families and individuals with relatively small incomes. In chart II,

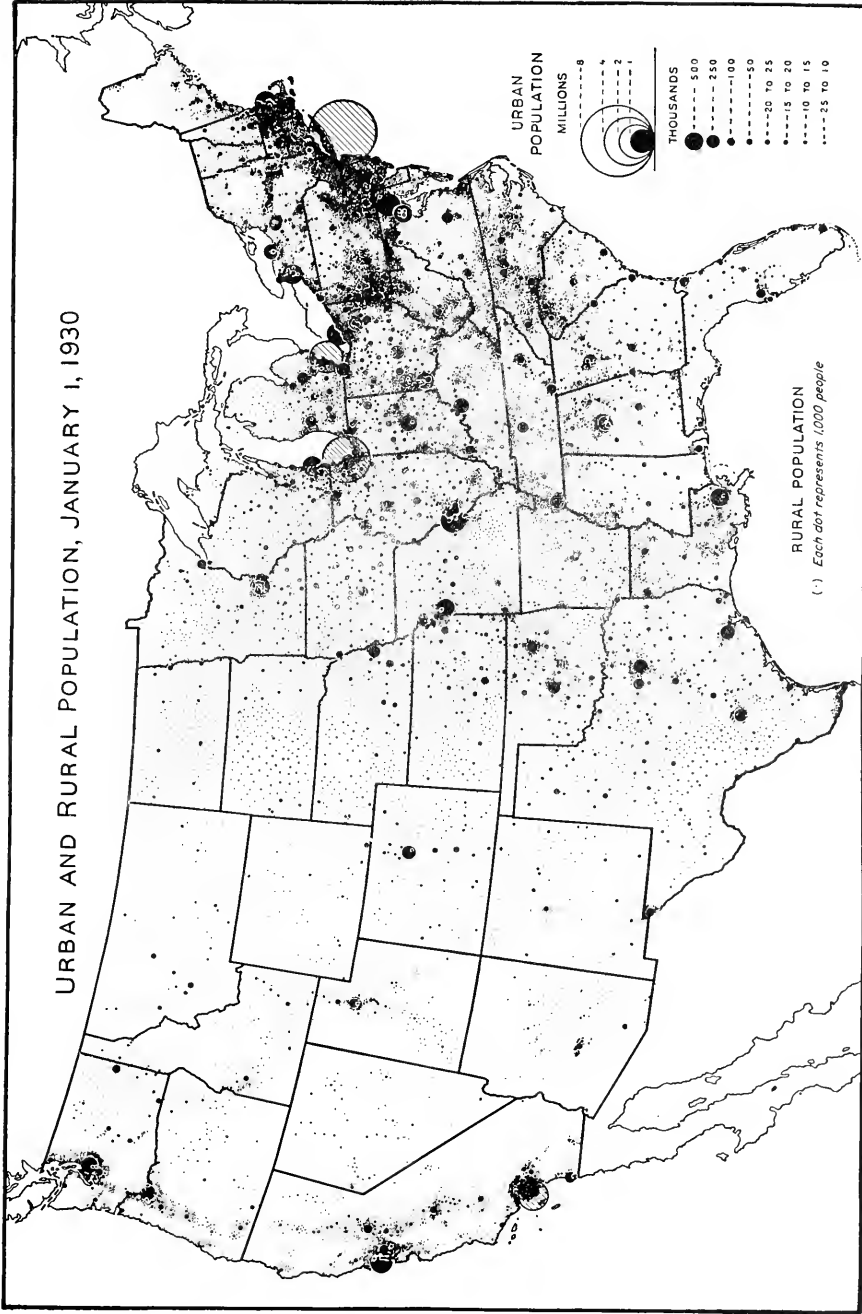
CHART I

DISTRIBUTION OF AGGREGATE CONSUMER INCOME  
1935-1936

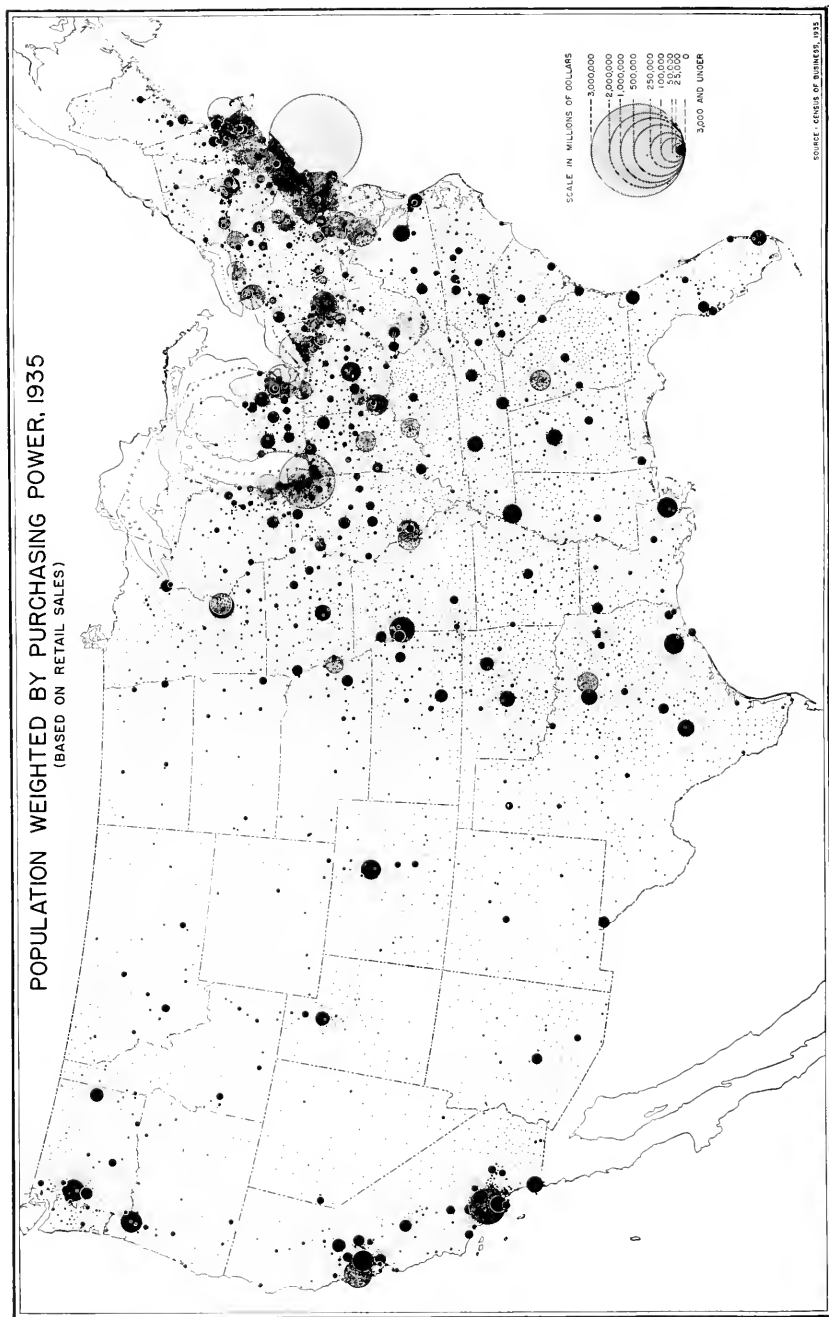


Source: *Consumer Expenditures in the United States*, National Resources Committee.

<sup>1</sup> The map exaggerates this difference by showing as urban the purchases made by rural people in neighboring cities.



MAP 1.—Distribution of Population, United States, 1930



the aggregate expenditure for consumption by consumers at each income level is shown.<sup>2</sup> More than half of the total expenditure, including home produced food and rental value of owned homes, was made by families and individuals having incomes between \$500 and \$2,000, and over 85 percent was made by consumers with incomes under \$4,000 a year. Only 6 percent of the total consumer expenditure was derived from incomes over \$10,000. Thus, in considering the structure of wants as reflected in actual expenditure, it must be kept in mind that one is dealing primarily with wants as they are made effective out of relatively small incomes.

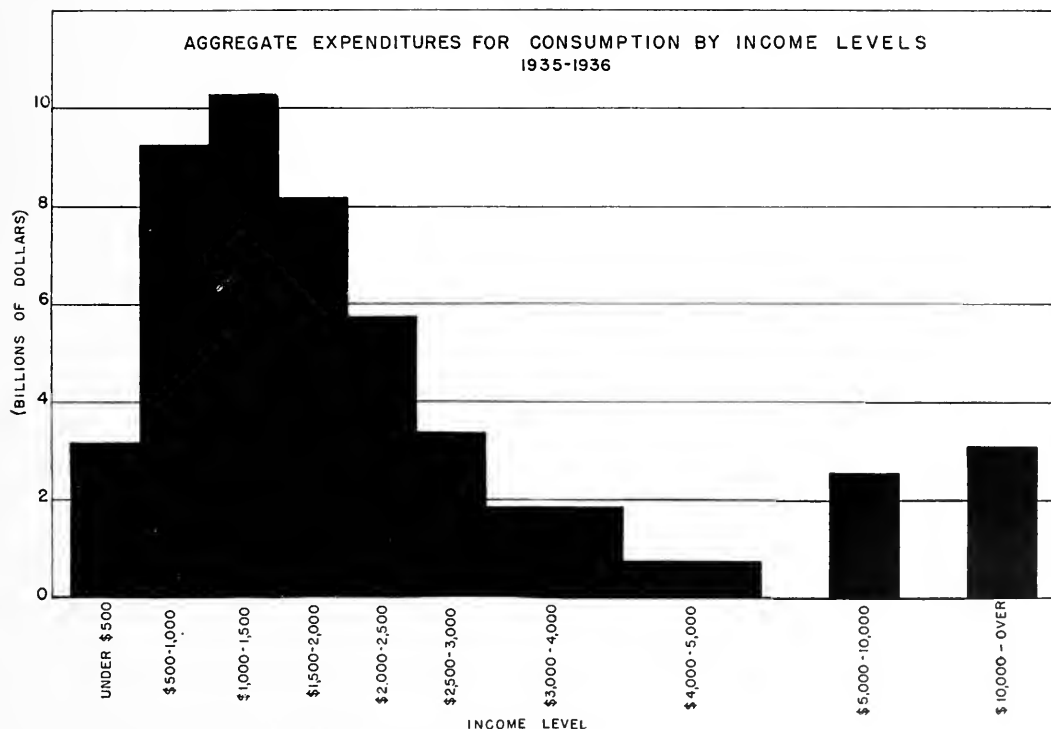
The reason why small-income consumers dominate the pattern of expenditure is partly to be seen in chart

<sup>2</sup> These data and the data in the following section are all expressed in 1935-36 dollars. They were drawn from the report of the National Resources Committee, *Consumer Expenditures in the United States*. The estimates apply to the 12-month period from July 1935 through June 1936. They were based primarily on the data from the Study of Consumer Purchases, a Works Progress Administration project, conducted by the United States Bureau of Home Economics and the United States Bureau of Labor Statistics in cooperation with the National Resources Committee and the Central Statistical Board.

I, which shows that nearly two-thirds of the total consumer income went to the receivers of incomes under \$2,600, who made up nine-tenths of all consumers. It is partly to be seen in chart III, which indicates the proportion of incomes that are saved at different levels. Consumers with incomes of \$1,500 spent very nearly all of their income, and those below \$1,250 spent, on the average, more than their total income. On the other hand, consumers with larger incomes saved a very substantial proportion, amounting to approximately 30 percent of the 5 to 10 thousand dollar incomes. Above the \$10,000 level, the proportion saved increases markedly.

This tendency to save a larger proportion of income at the higher income levels is of major significance for the structure of the American economy. It will be discussed in some detail in chapter VI, along with the factors which make for a larger or smaller volume of total expenditures on consumption. In this chapter discussion will be focused on the structure of wants as they are reflected in expenditures on consumption. The

CHART II



Source: Based on *Consumer Expenditures in the United States*, National Resources Committee.

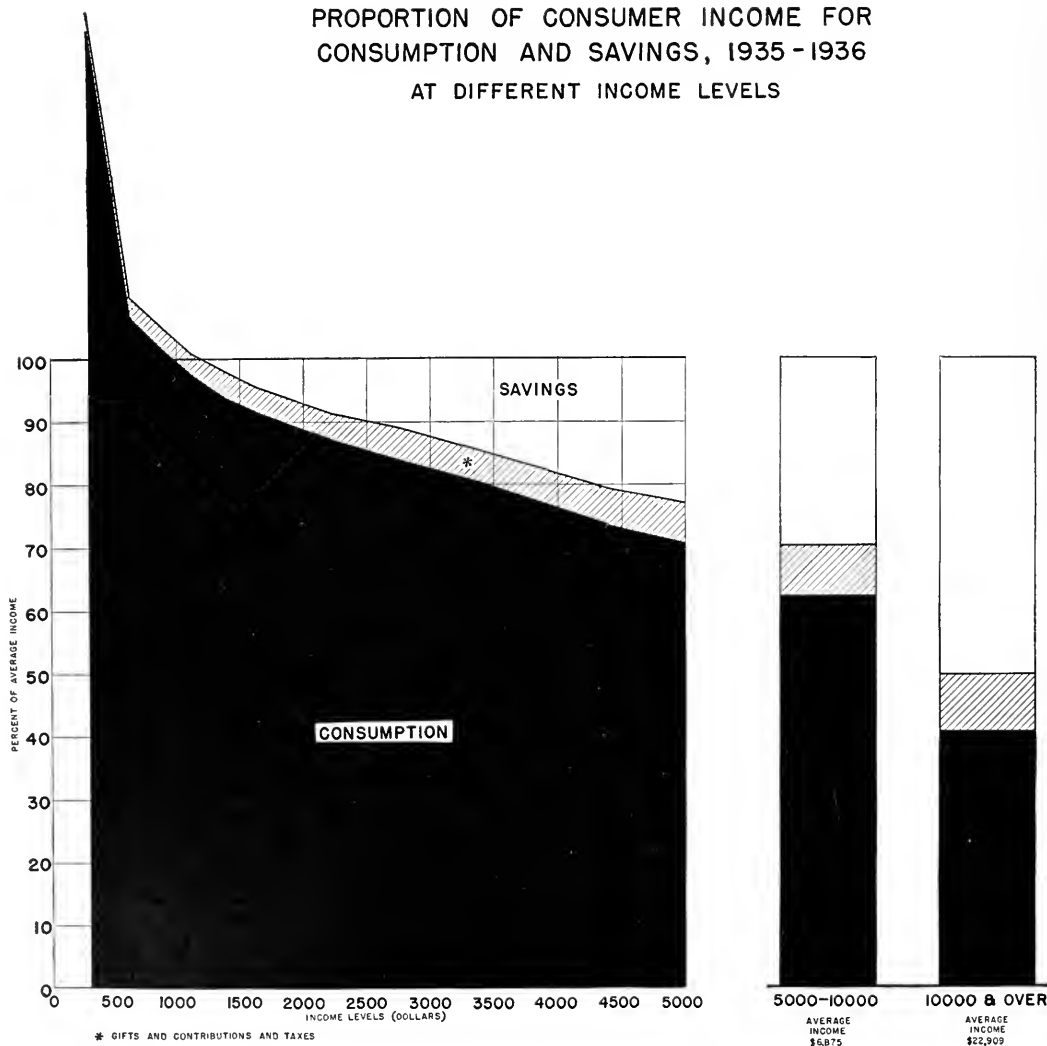
size and distribution of consumer income enter only incidentally as they appear to influence the direction of consumer expenditure.

### Major Items of Consumer Expenditure

In delineating the structure of wants as reflected in consumer expenditure, there are several main aspects which require attention. (1) What is the relative

importance of wants? (2) How does the direction of expenditures differ for individuals and families at different income levels? (3) How does the distribution of income affect the direction of expenditure? (4) What is the influence on the direction of expenditures of (a) the level of total national expenditure, and (b) a change in the level? (5) How do price relationships affect the direction of expenditure? And, (6) what are

CHART III  
PROPORTION OF CONSUMER INCOME FOR  
CONSUMPTION AND SAVINGS, 1935-1936  
AT DIFFERENT INCOME LEVELS



Source: Based on *Consumer Expenditures in the United States*, National Resources Committee.



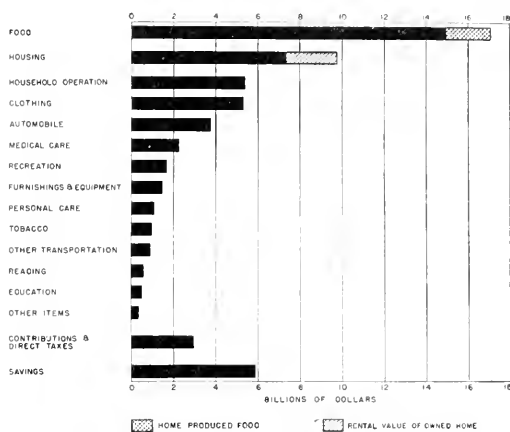
the trends of change in the direction of expenditures reflecting changes in wants through time? If each of these aspects of the structure of wants could be set forth, they would provide a fairly clear indication of what the national economy would probably be called on to produce under different possible conditions.<sup>3</sup>

The total consumer expenditure of American families and individuals in 1935-36 was approximately 50 billion dollars.<sup>4</sup> The proportioning of this expenditure among the major types of expenditure is indicated in chart IV. Outstanding in the structure of wants as reflected in the relative expenditure is the dominant role played by the basic essentials, food, clothing, and housing. These three items together accounted for 63 percent of the total of consumer expenditure. Operation and upkeep of the home (light, fuel, furniture, and similar items) and automobile expenditure account for another 21 percent, leaving only 16 percent to go for private expenditure on medical and personal care, education and reading, recreation, and other items.

A significant light can be thrown on the structure of wants by comparing the way money expended on consumption is apportioned among items by consumers with different levels of income. Chart V shows the average amount spent in 1935-36 by consumers in each income group on each major item of expenditure, while chart VI shows the proportionate distribution of these average expenditures among major items. The latter chart indicates that at higher incomes a much smaller proportion of consumer expenditure goes into food and a larger proportion into clothing, automobiles, and education, while about the same proportion goes into housing, household equipment, personal and medical care, reading, and other items, no matter what the level of income. More detailed figures show some increase in proportionate expenditure for household operation and recreation, and some decrease in that for tobacco. One item, transportation other than automobile, shows little change in the proportion of expenditure devoted to it except for the group with incomes over \$10,000 where the proportion increases, presumably reflecting greater expenditure on travel.

The difference in the way money is spent at different levels of income is strikingly shown in table I which compares the allocation of the expenditure of a million dollars if spent by 1,414 families having incomes between \$500 and \$750 with the allocation of the same amount by 145 families falling into the \$5,000 to

CHART IV  
EXPENDITURES OF AMERICAN CONSUMERS  
1935-1936



Source: Based on *Consumer Expenditures in the United States*, National Resources Committee.

\$10,000 income group.<sup>5</sup> These figures clearly indicate the shift in the emphasis of expenditure as the power to spend is expanded.

The changes here shown in the relative emphasis on particular wants as the power to satisfy wants is expanded gives one dimension to the structure of wants. As more detailed information becomes available from the study of consumer expenditures it will be possible to indicate the influence of buying power on different items within those large categories. From these data, for instance, it will be possible to measure the lesser importance of bread, cornpone, and potatoes in the

TABLE I.—Effect of size of income on direction of expenditure—Comparison of expenditure of 1 million dollars by consumers at 2 different levels of income

	If spent by 1,414 con- sumers with \$500-\$750 income	If spent by 145 con- sumers with \$5,000- \$10,000 income	Absolute difference	Percent- age dif- ference
Food.....	\$438,000	\$253,000	-\$205,000	-47
Tobacco.....	20,000	11,000	-6,000	-30
Housing.....	177,000	176,000	-1,000	-0.6
Personal care.....	20,000	20,000	0	0
Reading.....	8,000	9,000	+1,000	+12
Other items.....	7,000	8,000	+1,000	+14
Transportation, other than auto- mobile.....	7,000	11,000	+4,000	+57
Household operation.....	120,000	131,000	+11,000	+9
Furniture and equipment.....	25,000	35,000	+12,000	+52
Medical care.....	11,000	26,000	+15,000	+36
School supplies and private edu- cation.....	1,000	19,000	+18,000	+375
Recreation.....	16,000	46,000	+30,000	+188
Clothing.....	79,000	125,000	+46,000	+58
Automobile.....	40,000	117,000	+77,000	+192
Total.....	1,000,000	1,000,000		

Source: Based on *Consumer Expenditures in the United States*, National Resources Committee.

<sup>3</sup> See *Consumer Expenditures in the United States*, National Resources Committee, for detailed discussion of certain aspects of the structure of wants in addition to those here enumerated, including the effect on the structure of wants of family size, degree of urbanization, and geographical location.

<sup>4</sup> Of this 50 billion dollars, 4½ billion, or 9 percent, represented the value of home-produced food and the rental value of owned homes.

<sup>5</sup> The extreme categories, under \$500 and over \$10,000, are not used in this comparison because the figures are believed to be less reliable than those for the less extreme categories.

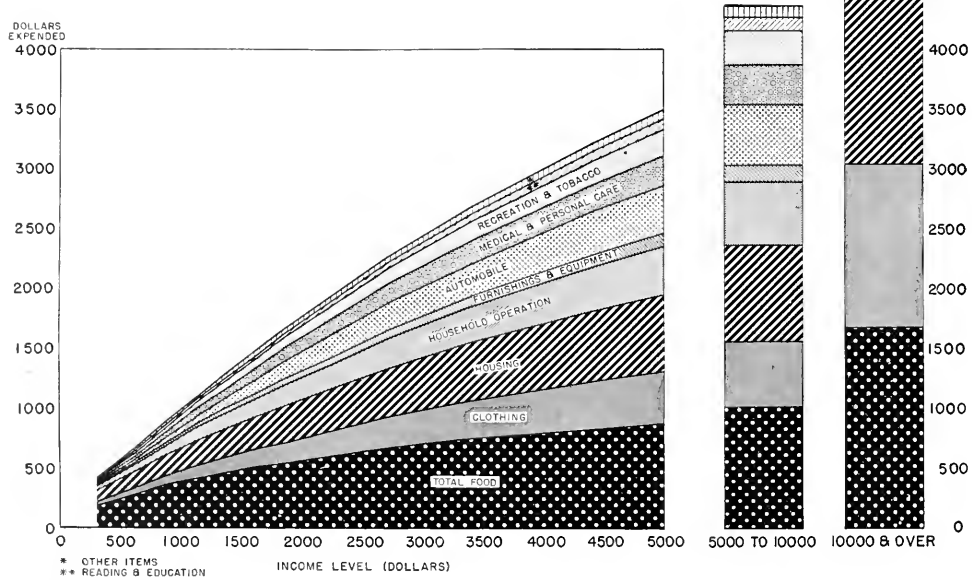
food budget and the greater importance of meat, milk, and fresh vegetables as buying power is greater. But even the gross figures for food, clothing, and other major items give a rough basis for examining other dimensions of the structure of wants, especially the direction and magnitude of change which might be expected to result from a change in the amount and distribution of income and expenditure.

In spite of the marked differences in the pattern of expenditure at different income levels, very considerable differences in income distribution do not appear likely to alter appreciably the proportion of a given national expenditure which would be devoted to each of the major items of expenditure, except, possibly in the transition period.

The effect of a more even distribution of income may be gauged by means of an extreme example. If the total national expenditure were made in the proportion characteristic of consumers with average expenditure, how would the results differ from the actual distribution of expenditure in 1935-36? The average expenditure per consuming unit<sup>a</sup> in 1935-36 was \$1,273, corresponding to an income of between \$1,250 and \$1,500 in that

<sup>a</sup> Exclusive of institutional consumers.

CHART V



AVERAGE EXPENDITURES FOR CONSUMPTION AT DIFFERENT INCOME LEVELS 1935-1936

Source: Based on *Consumer Expenditures in the United States*, National Resources Committee.

year.<sup>7</sup> If consumer income had been so evenly distributed that the whole of the 50 billion dollars spent on consumption in 1935-36 had been spent by families or individuals with incomes in this range, and if their expenditure followed the same proportions as the expenditure actually made by such families, the expenditure on the major items would have been that given in table II. The expenditure of all families and individuals in 1935-36 is also given for comparison.

Although the figures in table II are based on the extreme assumption of an equal distribution of income compared with the unequal distribution existing in 1935-36, the differences in the direction of expenditure are not of great magnitude. The largest absolute difference in expenditure shown is that for food, 1,363

<sup>7</sup> The average expenditure for the \$1,250-\$1,500 income group was \$1,285. The average income of all consumers was \$1,502. The average expenditure corresponds to a less than average income, owing to the greater proportion saved at higher income levels.

million dollars or 8.1 percent more being spent on food with an equal distribution of income than with the unequal distribution of 1935-36. The largest percentage increase is that of tobacco, showing 19.5 percent more spent on tobacco with equal distribution though involving an absolute increase of only 189 million dollars. Since any difference in income distribution arising in the near future is likely to be very much smaller than that assumed above, the differences shown are very much greater than any likely to arise from differences in income distribution. Thus, while the structure of the wants of individuals is such that greater buying power brings marked shifts in proportionate expenditure, a shift in income distribution of the magnitude likely to occur in practice would not bring a significant shift in the proportioning of expenditure among the major categories of goods, provided the same total amount was expended. The

CHART VI

### PROPORTIONATE DISTRIBUTION OF AVERAGE EXPENDITURES FOR CONSUMPTION AT DIFFERENT INCOME LEVELS 1935-1936

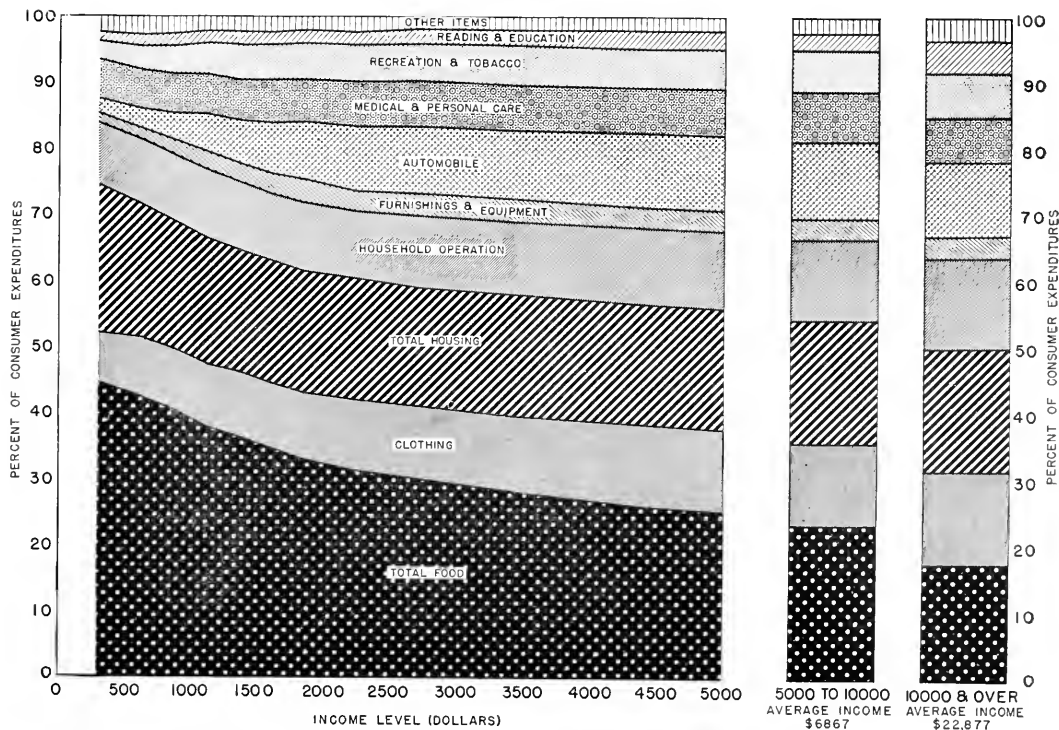


TABLE II.—Effect of income distribution on direction of expenditure.—Distribution of national expenditure of 50 billion dollars as spent in 1935-36, and as it would be spent with equal distribution of income

	Unequal distribution of income—estimated expenditure in 1935-36 (millions of dollars)	Equal distribution of income—calculated expenditure if all income were between \$1,250 and \$1,500 (millions of dollars)	Absolute difference (millions of dollars)	Percentage difference
Tobacco.....	966	1,155	+189	+19.5
Reading.....	551	603	+52	+9.4
Food.....	16,865	18,228	+1,363	+8.1
Furnishings and equipment	1,422	1,456	+34	+2.4
Personal care.....	1,032	1,054	+22	+2.1
Other items.....	307	391	+84	+27.0
Housing.....	9,509	9,393	-116	-1.2
Household operation	5,285	5,122	-163	-3.1
Transportation, other than automobile.....	884	854	-30	-3.4
Clothing.....	5,201	5,021	-180	-3.4
Medical care.....	2,205	2,059	-146	-6.6
Recreation.....	1,643	1,506	-137	-8.3
Automobile expense.....	3,781	3,264	-517	-13.6
Private education.....	506	352	-154	-30.4
Total expenditure.....	50,214	50,214	—	—
Corresponding consumer income.....	59,259	53,400	—	—

Source: Based on National Resources Committee report, *Consumer Expenditures in the United States*.

The distribution of expenditures is based upon the percentage distribution of the average expenditures of families and single individuals in the \$1,250 to \$1,500 income group. The average expenditure for this group was \$1,285 compared with an average expenditure for all groups of \$1,273.

greatest significance of differences in income distribution for the structure of wants lies in the proportion of consumer incomes which is saved, and possibly also in the more detailed categories of consumption on which data are not yet available.

Differences in patterns of expenditure of greater practical significance appear to grow out of variations in the total amount expended on consumption. In practice, variations in total expenditure are accom-

panied by changes in price relationships and by influences growing out of the transition from one level to another. The data on consumer expenditure at different income levels make it possible to calculate differences in total expenditure that could be expected to arise solely from differences in level of expenditure apart from the factors of price change and transition. With a higher level of total consumer expenditure, a larger expenditure in each major category could be expected, but each branch of expenditure would not be likely to be greater in the same degree. A rough indication of the direction and magnitude of change can be obtained by a recombination of the data on expenditures at each level of income to indicate the way different total expenditures would be divided between different items. Thus, it is possible to calculate how a total expenditure corresponding to a national income of 40, 60, or 80 billion dollars would have been spent if consumer income had been distributed in exactly the same proportion as in 1935-36 and if price relationships had remained unchanged, but each income group had received a different income and had adopted the expenditure patterns of the corresponding income group. Such a calculation does not take into account any of the changes in expenditure resulting from the transition from one level to another but only reflects the differences in expenditure at the different levels after adjustment had been made to the new level. The patterns of expenditure calculated on this basis for an expenditure of 38 billion dollars, corresponding to a consumer income of 40 billion dollars, for 51 billion dollars corresponding to a consumer income of 60 billion dollars, and also for 63 billion dollars, corresponding to a consumer income of 80 billion dollars, are given in table III,

TABLE III.—Effect of level of consumer expenditures on the direction of expenditures

	Expenditure of \$37,869 million corresponding with \$40 billion income (millions of dollars)	Expenditure of \$50,784 million corresponding with \$60 billion income (millions of dollars)	Expenditure of \$63,494 million corresponding with \$80 billion income (millions of dollars)	Absolute difference (millions of dollars)			Percentage difference			Percent distribution of expenditures		
				\$40 to \$50 billion income	\$50 to \$60 billion income	\$40 to \$80 billion income	\$40 to \$50 billion income	\$50 to \$60 billion income	\$40 to \$80 billion income	\$37,869 million	\$50,784 million	\$63,494 million
Food.....	13,771	17,013	19,874	3,242	2,861	6,103	23.5	16.8	44.3	36.3	33.5	31.3
Housing.....	7,500	9,597	11,876	2,097	2,279	4,316	26.9	23.7	57.1	19.9	18.7	18.7
Transportation, other than automobiles.....	672	888	1,079	216	191	407	32.1	21.5	60.6	1.8	1.7	1.7
Personal care.....	778	1,044	1,289	266	245	511	34.2	23.5	65.7	2.1	2.1	2.0
Reading.....	405	555	675	150	120	270	37.0	21.6	66.7	1.1	1.1	1.1
Tobacco.....	713	982	1,189	269	270	476	37.7	21.1	66.8	1.9	1.9	1.9
Household operation	3,406	5,355	6,822	1,419	1,467	2,886	36.1	27.4	73.3	10.4	10.5	10.8
Other items.....	225	307	402	82	95	177	36.4	30.9	78.7	.6	.6	.6
Clothing.....	3,696	5,327	6,949	1,631	1,622	3,253	44.1	30.4	88.0	9.8	10.5	10.9
Medical care.....	1,552	2,242	2,919	690	677	1,365	44.5	30.2	88.1	4.1	4.4	4.6
Furnishings.....	945	1,447	1,916	502	499	971	33.1	32.4	102.8	2.5	2.8	3.0
Recreation.....	1,041	1,668	2,311	627	643	1,270	60.2	38.5	122.0	2.7	3.3	3.6
Education.....	319	512	746	193	234	427	60.5	45.7	133.8	.8	1.0	1.2
Automobiles.....	2,256	3,847	5,447	1,591	1,600	3,191	70.5	41.6	141.4	6.0	7.6	8.6
Total expenditures.....	37,869	50,784	63,494	12,915	12,710	25,625	34.1	25.0	67.6	100.0	100.0	100.0
Corresponding income.....	40,000	60,000	80,000	20,000	20,000	40,000	50.0	33.3	100.0	—	—	—

Source: Based on National Resources Committee report, *Consumer Expenditures in the United States*.

along with the percentage differences. In 1935 prices, these incomes would be approximately 20 billion dollars smaller, the same as, and 20 billion dollars greater than, the consumer income level of 1935-36.

The most striking feature of table III is the apparent lack of any indication of a limit to any of the wants reflected in the items. At the highest level of expenditure, for every one of the separate items there would be a great increase in expenditure over the lowest. The expenditure for food, the item showing the smallest rate of increase, would be 44 percent greater with the two-thirds greater level of total expenditure.<sup>8</sup> This 44 percent increase in expenditure on food is particularly significant since it is so often stated that the demand for food is limited. Undoubtedly part of the increased food expenditure would go into an improvement in quality—more milk, meat, and fresh vegetables—and only part into an increase in quantity, but in either case it would call for greater farm production for domestic consumption. For each major category of consumption, the structure of wants appears to be such that a big lift in consumer expenditures would create a greatly increased domestic market for every broad class of products.

From a study of this table it is also possible to add a new dimension to the structure of wants. While the demand for all broad classes of foods and services expands with larger national income, it is not a uniform expansion. Greater buying power, with price and other market conditions not significantly changed, is likely to produce a smaller than proportionate expansion in food and housing expenditures and transportation other than automobile. The largest proportionate increase indicated is in expenditures for automobiles and for education. Furnishings, clothing, medical care, recreation, and other miscellaneous items also show a much more than proportionate increase. Increases in the remainder of the items listed would be more nearly proportionate to the increase in total expenditure.

As in the case of individual differences in buying power, the greater the total buying power the less the proportionate emphasis on expenditure for the basic necessities and the greater the emphasis on expenditure for better clothing, automobiles, recreation, and private education.

An actual change in the level of national expenditure would be unlikely to be reflected in just the proportions shown above, because of the adjustments in expenditure habits involved in the transition from one level to another. There is little specific data on the transitional

effect of a change in income on the direction of current expenditure. Probably its most important effect would be on the purchase of durable and semidurable goods, whose purchase can so often be postponed. When the income of a family that has become adjusted to a \$2,000 level of spending is suddenly reduced, the family is likely to carry over reserves of durable and semidurable goods which can contribute for a time to the family living without involving current expense. Clothing will be worn longer and the family automobile will be tinkered with and repaired instead of being replaced by a later model. Gradually as this extra reserve of durable and semidurable goods is used up, the family will have to adapt its living more nearly to a balanced pattern of expenditures. But in the transition period, a smaller proportion of its expenditure is likely to go into durable and semidurable goods than either before the change in income level or after adjustment has been made to the lower level.

Similarly, an increase in income, that represents a return to levels to which a family was accustomed at some earlier date, is likely to involve a greater than balanced expenditure on durable and semidurable goods. Even a sudden expansion of income to unaccustomed levels appears likely to lead to the sudden acquisition of durable goods to correspond with the higher level of living made possible by the increased income. Data are not available to show the nature and magnitude of these transition changes in the pattern of expenditure, but they are likely to be of sufficient importance to the structure of wants to warrant further research. The evidence of the actual changes in consumption of durable and nondurable goods from 1929 to 1932 point in the direction indicated above.

Two other major dimensions of the structure of wants require exploration—the effect of price relationships on the structure of wants and the trend of change as wants shift through time. On neither of these points are data available for the major categories of consumer expenditure. Pioneer work has been done on specific price relationships in relation to consumption, especially for agricultural products,<sup>9</sup> and on the trend in consumption for a number of specific items. With respect to both these aspects the data are insufficient, and the delineation of these dimensions of the structure of wants must wait upon future research.

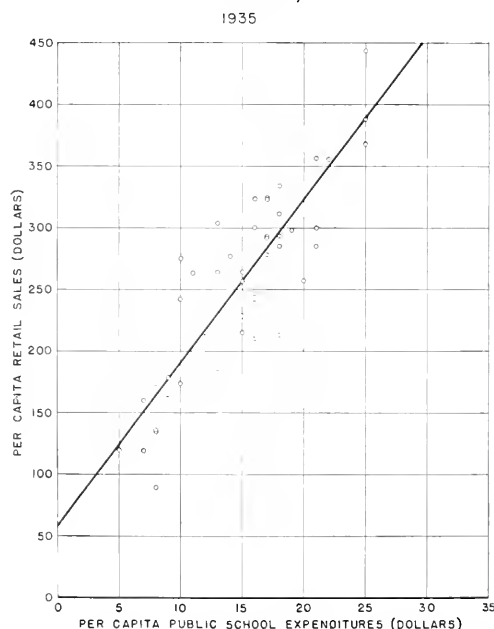
The main aspects of the structure of wants can now be summarized in terms of the major items of expenditure as follows: Food, clothing, and shelter are wants finding expression in the largest body of consumer expenditure, accounting for nearly two-thirds of the total.

<sup>8</sup> With the actual variation in consumer income experienced in recent years this expansibility in the demand for food is not apparent, as farm production has been maintained at a relatively constant level, and food prices have dropped markedly, in relation to other prices, with declines in consumer income. This has allowed consumption to be maintained at a relatively constant level.

<sup>9</sup> See Bureau of Agricultural Economics, *Agricultural Economics Bibliography* No. 58, October 1935; *The Theory and Measurement of Demand*, by Henry Schultz, Chicago, 1938.

At lower income levels the want for food requires a larger proportion of expenditure while at higher income levels food expenditure is relatively smaller, and expenditure on clothing, travel (including automobile), recreation, and private education play a larger role. Changes in the distribution of income appear unlikely to produce important changes in the direction of expenditure among the major items, provided the total expenditure remains the same. On the other hand, changes in the level of the total consumer expenditure appear likely to produce considerable changes in the direction of expenditure, reflecting the shift in expenditure as the buying power of each income group is shifted upward or downward. A higher national expenditure would involve a somewhat smaller proportion spent on food and a larger proportion spent on clothing, travel, recreation, and private education. Few data are available on the effect on expenditure of the transition from one level of consumer income to another, but it seems likely that a transition to a lower level of expenditure would decrease the proportion of expenditure going to more durable goods and a transition to a higher

CHART VII  
PER CAPITA RETAIL SALES AND PER CAPITA EXPENDITURES  
FOR PUBLIC EDUCATION, BY STATES



Source: Based on data from the *Census of Business, 1935*; and United States Office of Education, 1935-36.

level would increase the proportion going to such goods. The influences of likely changes in price relationships on the direction of expenditure and trends of change still remain to be worked out. When these are determined the main aspects of the structure of wants will have been covered for the major items of consumer expenditure.

### Major Items of Social Expenditure

In addition to the wants of consumers expressed through private expenditure, there are many wants, such as those for education, sanitation, highways, church services, and hospital care, which find expression largely through social expenditure. A rough estimate of the principal items of social expenditure indicates that the total social expenditure amounted to at least 5 billion dollars in 1935-36. If this figure is added to the 51 billions of direct consumer expenditure, it gives a total expenditure on consumption of 56 billion dollars, of which at least 9 percent was social expenditure. In addition, consumption by institutional residents amounted to approximately 200 million dollars, and by quasi-institutional groups, such as army, navy, and civilian conservation corps, to 500 million dollars.

The principal items obtained through social expenditure are shown in table IV. Some of these items are supplied only on a social basis, such as roads. Others are partly furnished socially, and partly out of individual expenditures. The total of individual expenditures for the roughly corresponding items is placed beside the social expenditure.

TABLE IV.—Major items of social expenditures 1935-36  
(millions of dollars)

	Social expenditures <sup>1</sup>				Individual expenditures <sup>2</sup>
	Governmental			Total	
	Federal	State	Local		
Education.....	47	99	2,015	60	2,221
Health and sanitation.....	50	42	227		319
Recreation.....	122	9	79		210
Reading.....	3	2	37	3	45
Highways.....	306	233	517		1,056
Charities, hospitals and corrections.....	135	56	101	119	357
Churches.....				821	821
Interest on debt.....	857	129	839		

<sup>1</sup> Source: See Appendix 18, sec. 3 for derivation of these items. The following governmental expenditures are not included:

	Millions
General government.....	833
Protection to person and property.....	1,081
Development and conservation of natural resources.....	940
Operation and maintenance of public service enterprises.....	999
Capital expenditures.....	1,845

Some items included within these categories might properly be included as items of social consumption, e. g., that part of expenditures for police and fire departments which goes to the protection of homes. Some parts of the items included in the table should not be included, e. g., the part of expenditure for highways which should be allocated to business rather than to consumption. The whole field of social expenditure is one upon which much work needs to be done before even a roughly adequate analysis can be made.

<sup>2</sup> *Consumer Expenditures in the United States*, National Resources Committee.  
<sup>3</sup> Nearly half of this amount represents interest on Federal debt incurred through loans made to Allies during the World War. This should not be considered as an expenditure for social consumption.

The amount and character of social expenditure is, in large measure, a reflection of the wants of consumers, although it does not involve direct purchase by them. Contributions in the form of taxes and gifts to governments and institutions for purposes of social expenditure are part of the expenditure patterns of individuals. The wants of consumers, and the ability to make those wants effective, are reflected in large expenditures for public education in a wealthy community, or in one sufficiently eager for education to sacrifice direct private expenditures in favor of indirect expenditures via taxes, and large expenditures for religion in a wealthy or especially pious parish. The variation in social expenditure for public education in relation to differences in per capita retail sales, shown in chart VII, emphasizes this close relation between individual and social expenditure.

### Durability and Consumer Wants

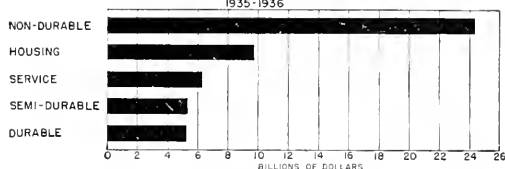
So far both consumer and social expenditure have been considered primarily in terms of the types of wants which they are aimed to satisfy. An equally important grouping of consumer wants would be one that took account of the durability of the goods which are purchased to satisfy them. As will become apparent as the structure of the American economy is further examined, important structural characteristics revolve around the factor of durability.

For purposes of analysis, all consumer goods can be grouped into four degrees of durability: durable commodities, semidurable commodities, nondurable commodities, and services. Automobiles and furniture would fall into the durable group since they usually render a series of services over a considerable period of years. Clothing and automobile tires fall into the semidurable group, yielding a series of services but not usually lasting more than a year or so. Food and gasoline fall into the nondurable category since they are usually consumed in what is, for practical purposes, a single operation instead of rendering a series of services during a period of time.<sup>10</sup> Services include the items which do not take an intermediate physical form but are rendered directly to consumers, such as education, music, medical service, and personal service.

The data on consumer expenditure are not yet available in a sufficiently detailed form to make possible an accurate estimate of the proportion of consumer expenditures falling into each class of durability. In chart VIII and in table V, the major items of expenditure are grouped on the basis of the durability categories into

<sup>10</sup> Durability in the sense of rendering a series of services should not be confused with non-perishability. Commodities like salt or wine may be capable of being stored for long periods yet are usually classed as nondurable if they are customarily consumed in a single use.

CHART VIII  
AGGREGATE EXPENDITURES FOR CONSUMPTION  
BY DEGREE OF DURABILITY  
1935-1936



Source: Based on data from the report, *Consumer Expenditures in the United States*, National Resources Committee.

which they most nearly fall. These groupings reflect degrees of durability only roughly, since the available expenditure categories are, in many cases, combinations of goods of varying degrees of durability. Only half of the total automobile expenditures in 1935-36 went for the purchase of automobiles, and half went for semi- and nondurable goods, such as tires, oil and gas, or for garage and similar services. Expenditures for household furnishings are classed as dominantly durable because they consist to such a large extent of furniture, but they contain such semidurable goods as dish towels and sheets. Recreation, classed as dominantly non-durable, includes the purchase of radios. Housing is separately listed since expenditure for rent constitutes payment for a service provided by a durable good and does not fall clearly into the four categories of durability.

In spite of the mixed character of the data, it is apparent from chart VIII that the bulk of consumer expenditure in 1935-36 was directed to the purchase of goods which were not of a durable or semidurable character. Over 60 percent of expenditure went into categories dominated by nondurable commodities and services and nearly 20 percent into housing. Only approximately one-tenth each went to categories dominated by semidurable and durable consumers goods.<sup>11</sup>

The importance of the distribution between durable and nondurable commodities for the structure of wants lies in the greater sensitivity of expenditure on consumer durable goods to variations in consumer income. As in the case of the major items of consumer expenditure, a shift in the distribution of consumer income would produce little alteration in the proportion of a given expenditure going to durable as against nondurable goods.<sup>12</sup> However, a variation in the level of total expenditure could be expected to make a significant difference, the

<sup>11</sup> It is probable that the grouping of items here used throws more nondurable items into the durable category than vice versa, and tends to minimize rather than to exaggerate the predominance of expenditure for nondurable items.

<sup>12</sup> If the whole of the 50 billion dollars expended by consumers in 1935-36 had been spent according to the expenditure pattern of consumers with incomes between \$1,250 and \$1,500, 0.8 percent less would have been spent on the items grouped into the durable goods category, 0.6 percent less on semidurable, 0.7 percent less on housing, and 2.1 percent more on goods and services in the nondurable category.

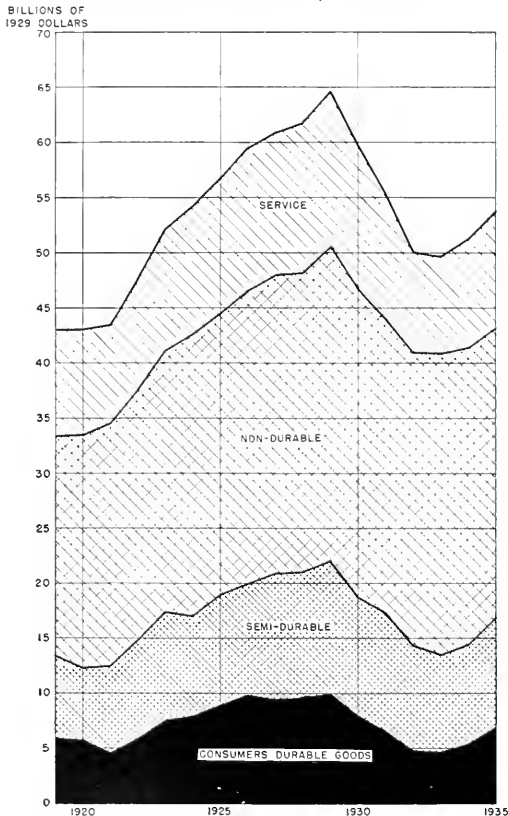
TABLE V.—Effect of level of expenditure on direction of expenditure by durability (millions of dollars)

	37,869 million dollars expended, 40 billion dollar income	50,784 million dollars expended, 60 billion dollar income	63,494 million dollars expended, 80 billion dollar income	Absolute increase (millions of dollars)			Percent increase		
				40 to 60 billion dollar income	60 to 80 billion dollar income	40 to 80 billion dollar income	40 to 60 billion dollar income	60 to 80 billion dollar income	40 to 80 billion dollar income
Furnishings and equipment, and automobiles.....	3,201	5,294	7,393	2,093	2,069	4,162	65.4	39.1	130.0
Clothing.....	3,636	5,327	6,949	1,631	1,622	3,253	44.1	30.4	88.0
Food, household operation, tobacco, and reading.....	18,825	23,965	28,590	5,080	4,655	9,735	27.0	19.5	51.7
Personal care, medical care, recreation, education, transportation, and other items.....	4,587	6,661	8,746	2,074	2,085	4,159	45.2	31.3	90.7
Housing.....	7,560	9,597	11,876	2,037	2,279	4,316	26.9	23.7	57.1

Source: Based on National Resources Committee report, *Consumer Expenditures in the United States*.

CHART IX

PRODUCTION OF CONSUMER GOODS AND SERVICES  
BY DEGREE OF DURABILITY, 1919-1935



Source: See appendix 18, section 4, for data upon which the chart is based.

expenditure on nondurable goods and housing being most stable and that for durable goods being least stable. This is suggested by table V below in which a consumer expenditure of 37,869 million dollars corre-

sponding to an income of 40 billion dollars is compared with that of 63,198 million dollars corresponding to an income of 80 billion dollars, and both are compared to the 1935-36 expenditure corresponding to approximately 60 billion dollars. Each expenditure is calculated on the assumption that prices and proportionate income distribution were the same as in 1935-36 and that consumers followed the patterns of consumption at the different income levels already indicated in chart V. Such calculations take account of the difference in level of expenditure but, of course, take no account of the transitional changes in expenditure.

In practice, rapid changes in the total of consumer expenditure are usually accompanied by significant transitional and price changes so that the expenditure on consumer durable goods is more sensitive to variations in consumer expenditure than these figures would indicate. In chart IX below the consumer expenditure on durable, semidurable, and nondurable goods and for services is indicated for recent years. For each series the estimates of dollar expenditure have been deflated by a price index for the particular category so as to give a quasi-physical measure of quantity of production stated in 1929 dollars. The greater sensitivity of durable goods expenditure to variation in total expenditure is at once apparent in the data for the depression period. The quantity of durable goods purchased dropped 52 percent from 1929 to 1932, whereas the semidurable goods purchased dropped only 20 percent and the non-durable dropped 8 percent. The purchase of services, represented by a less reliable figure, appears to have dropped approximately 33 percent. If the drop in total expenditure had been simply one of level without significant transitional or price changes and had followed the 1935-36 pattern for the separate income groups, the percentage drops would not have corresponded to those given above.

Until it is possible to disentangle the influence of prices from that of the transition from one level to another it is not possible to delineate that dimension of the structure of wants which has to do with the influence of prices on the relative expenditures on durable and nondurable goods. Likewise the trends



of change in the proportion of expenditure going into items of different degrees of durability must wait on further research.

In summarizing the structure of wants from the point of view of durability, the outstanding characteristic is the greater sensitivity to changes in expenditure with greater degrees of durability. This appears to be due both to greater expenditure on durable goods at higher levels of total expenditure and to greater expenditure with a transition from a lower to a higher level of expenditure. In the recent depression, the proportionate decline in the volume of consumer durable goods purchased appears to have been due not only to a lower and declining level of total expenditure but also to the relative inflexibility of the prices of more durable goods.<sup>13</sup>

### Specific Items of Consumer Expenditure

Further light on the structure of wants can be found by analyzing the purchase of specific items. In a recent report of the National Resources Committee<sup>14</sup> the production of each major segment of the national economy has been analyzed with particular reference to its sensitivity to changes in consumer income and to its trend of change through time. Since the production of an industry supplying consumer goods tends to parallel its sale to consumers, these analyses can be used as a rough guide to the behavior of consumer expenditure. In table VI below data are given for 39 items of con-

sumer expenditure. The items are arranged approximately in the order of their sensitivity to variations in consumer income. As is to be expected, the durable items—automobiles, pottery, and furniture—are the most sensitive. Next come the semidurable, then the nondurable, and, with some exceptions, the services. Railroad passenger traffic, telegraph, telephone, and postal service, and bituminous coal are only partly used by consumers, being partly used by business and government. Presumably the consumer uses are on the whole less sensitive than the producer uses, so that, insofar as production for use by consumer is concerned, the items should show less sensitivity than they do in the table. To the extent that knit goods are made up of stockings they are of comparatively short life and partake of some of the characteristics of nondurable goods. This differential sensitivity closely parallels that already shown for the durable, semi- and nondurable goods but by its detail it gives greater precision to this particular dimension of the structure of wants.

One other dimension of the structure of wants can be sketched in from these same data, namely, the trend of change in consumer wants. Chart X below shows the trends of change in the purchases of particular items as they would arise if there were no variation in consumer income but consumers had the same income to dispose of year after year. Chart X gives a more significant indication of the structure of wants than would unadjusted trends of change which reflected variations in income as well as changes in wants. The chart shows the percent change in the amount of each

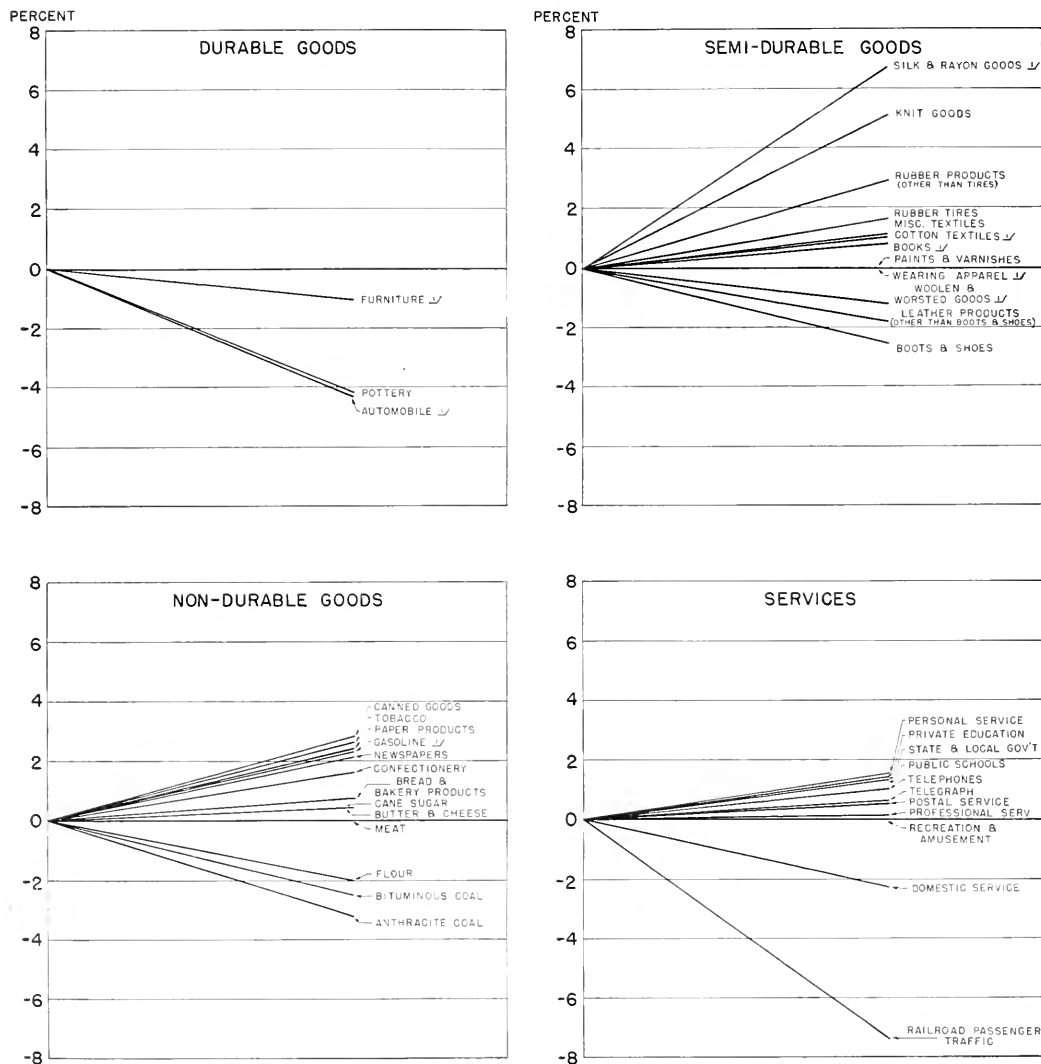
TABLE VI.—*The sensitivity of consumer goods to changes in consumer income*

Index of sensitivity <sup>1</sup>	Services	Nondurable	Semidurable	Durable
0-5.	State and local government. Professional service. Private schools. Public schools.	Flour.		
5-10.	Personal service. Telephone. Postal service.	Cane sugar. Bread and baking. Butter and cheese. Meat.	Knit goods.	
10-15.		Gasoline. Newspapers. Anthracite coal. Tobacco.		
15-20.	Recreation and amusements. Domestic service. Telegraph.	Confectionery and chocolate. Canning and preserving	Book printing and publishing. Boots and shoes. Wearing apparel.	
20-30.		Bituminous coal. Paper products.	Miscellaneous textiles. Silk and rayon goods. Rubber tires. Woolen and worsted goods. Cotton textiles.	
30-40	Railroad passenger traffic		Paints and varnishes. Leather products other than shoes. Rubber products other than tires.	
40-100.				Pottery
Over 40.				Furniture
Over 100.				Automobiles

<sup>1</sup> The percent increase in sales which could be expected with a 20-percent increase in consumer income, e. g., from 65 to 78 billion dollars. Based on table II of the report *Patterns of Resource Use*, National Resources Committee.

CHART X

# TRENDS OF CHANGE IN CONSUMER WANTS AVERAGE ANNUAL RATE OF CHANGE\*



\*AFTER ADJUSTMENT FOR DEPRESSION

✓ DATA FOR THESE PRODUCTS LESS RELIABLE THAN FOR OTHERS

Source: Based on the formulas shown in the respective summaries of the report, *Patterns of Resource Use*, National Resources Committee. The rate of change is computed from the net relationship with time shown in each formula when the other factors are held constant.

item purchased which would be expected between successive years if consumer incomes remained constant. There is no clear evidence that trends of change in wants are significantly affected by the factor of durability. The more significant downward trends are the trends away from pottery, leather boots and shoes, anthracite and bituminous coal, and domestic service.<sup>15</sup> Even more marked is the trend away from railroad travel as the automobile and bus play a larger role. The more important upward trends are those in silk and rayon, knit goods, rubber goods other than automobile tires, canning and preserving, tobacco, paper products, and gasoline. These trends reflect a definite shift in the goods purchased. They may reflect changes in prices, particularly in the case of silk and rayon, the introduction of substitute items as the automobile displaces railroad travel, a change in tastes as in the case of tobacco or a variety of other factors, such as changes in the quality of product or in current conceptions of a balanced diet. Whatever the cause of the trends of change, they reflect the constantly changing, non-static character of consumer demands and give some indication of the dynamic character of the structure of

<sup>15</sup> The declining trend in bituminous coal may be accounted for primarily by a declining trend in business use.

consumer wants to which the resources of the Nation must be geared in productive activity.

In the foregoing, an effort has been made to sketch in the main characteristics of the structure of consumer wants. Wants are important for economic activity because if there are no wants to be filled there is no basis for such activity. As long as there are wants to be filled and resources available to fill them, the basic essentials for economic activity are present. Analysis of the structure of wants has disclosed the dominant role played by the desire for food, clothing, and shelter, more than 65 percent of consumer expenditure in 1935-36 going to fill these wants. Moreover, it has shown the tremendous residue of unfilled wants which would find expression in the purchase of goods if consumer incomes were sufficiently increased. The increased expenditure with higher incomes would be distributed over all of the major categories, showing that in none of them is there an immediate limit to the wants to be filled. The indications are clear that American consumers, if they had sufficient money income, would constitute a market sufficient to absorb all the production which American industry has the resources to turn out. It is not for lack of wants to be filled that economic activity is carried on at the low level of recent years.

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## CHAPTER III.—THE STRUCTURE OF RESOURCES

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The resources of the country provide the second major element in the structure of the economy. Wants and resources constitute the two poles of the economic process. It is the function of that whole process to use the resources in satisfying wants.

### National Resources

The most concrete resources of the Nation are its natural resources—soil and minerals, forests and streams. Equally concrete is the plant developed by men—the homes and factories, dams and powerhouses, machinery and equipment, farm improvements and irrigated areas—all the man-made physical improvements. These natural resources and man-made improvements provide the physical resources available for further production and contribute to the structure of the American economy, particularly in respect to its geographical characteristics.

Of greater significance as a resource is the manpower of the Nation. Without the skills and the activity of

men and women, physical resources would be of no avail. Skilled farmers and workers, skilled craftsmen and technicians, skilled scientists, business men, politicians, artists, and homemakers—these and other productive workers constitute the Nation's greatest resource. The characteristics of the available manpower make up an element in the structure of the whole economy.

In addition to the natural resources, plant, and manpower which are available to be employed in satisfying consumer wants, there are other types of resources which condition the process of production even though they are not themselves consumed. These resources are (1) the climate and topography which condition the physical environment of production, (2) the techniques of production, developed in the past, upon which current activity rests, and (3) the social institutions which provide the social framework without which organized production could not take place. An equable climate, complex institutions, and modern techniques constitute



Source: *Report of National Resources Board, December 1, 1934.*

MAP 1.—RELIEF MAP OF THE UNITED STATES

national resources no less than the natural resources, plant, and manpower.

These resources, the natural resources, plant, and manpower which can be used to satisfy wants, and the climate, institutions, and techniques which condition this use, constitute the basis of national well-being. The quantity and quality of national resources largely determine the degree to which wants of American consumers can be satisfied directly out of American resources. The location of both natural resources and man-made plants give to the economy much of its geographical structure. The organizational structure by which resources and wants are brought into relation to each other determines the extent to which these resources yield a high level of living or economic and social waste.

### Natural Resources

As compared with other nations, the United States is richly supplied with cropland, forest, the basic mineral resources necessary for peacetime activity, and the strategic minerals upon which war industries depend. The soil and climate of the United States will permit the production of all of the major crops with the exception of such tropical products as rubber, tea, and coffee. Most of the industrially important minerals are available in the continental United States. Power is available in great quantities direct from the rivers and streams and generated from ample supplies of fuel. Since the country is waterbound on both the east and west, the resources of both oceans are available. Codfish of the east and salmon of the west as well as the other fisheries from oceans and lakes provide a significant food resource. In natural resources, the country is indeed rich.

The most significant structural aspect of the country's natural resources can be portrayed in a series of maps. Map 1 shows in relief the physical features of the continental United States, indicating the basic relationships of distance and accessibility which in a measure control the manner in which physical resources can be used. Maps 2, 3, and 4 show the forests still available, the land suitable for crops, and the land suitable for pasture but not for crops.

In map 5 the value of farm land is indicated. Comparison of maps 3 and 5 shows the greater value of farm land in some areas, reflecting not only the better resource, i. e., more fertile soil, but also more favorable location in relation to markets. This farm land is much the most valuable of the country's natural resources. In addition to the surface resources of soil and timber, subsurface mineral resources of coal and oil, iron ore, and a host of lesser minerals make up the remaining value of natural resources. The geographical location of coal, iron, and oil deposits is shown in

chapter IV, maps 21 and 22, and appendix 16, map A-49, in connection with the location of industries working these minerals. The remaining minerals, minor in volume but of strategic importance, are scattered, primarily in the mountainous areas of the Rockies and to a lesser extent the Appalachians.

The richness of natural resources is emphasized by the small extent to which the economy draws on outside sources of supply. Although individual items of import are vitally important for specific purposes, the contribution of necessary imports to the whole economy is of minor proportions. As indicated in table I, approximately 43 percent of the total American imports in both 1929 and 1937 consisted of tropical products and the semitropical product, cane sugar. These items constituted 65 percent in 1929 and 79 percent in 1937 of the imports of all raw materials. Imports of minerals amounted to between 6 and 7 percent of the value of total imports. Together, imports of tropical products and minerals amounted to an insignificant figure in relation to the total national production, being equal to about 2 percent of national production in 1937. Even some of these imports, particularly sugar, did not result from lack of resources, but, like most other imports, were the result of the greater productivity of American workers and management in producing other things which could be exchanged for these products. Thus the dependence of this country on foreign natural resources is small in relation to total activity.

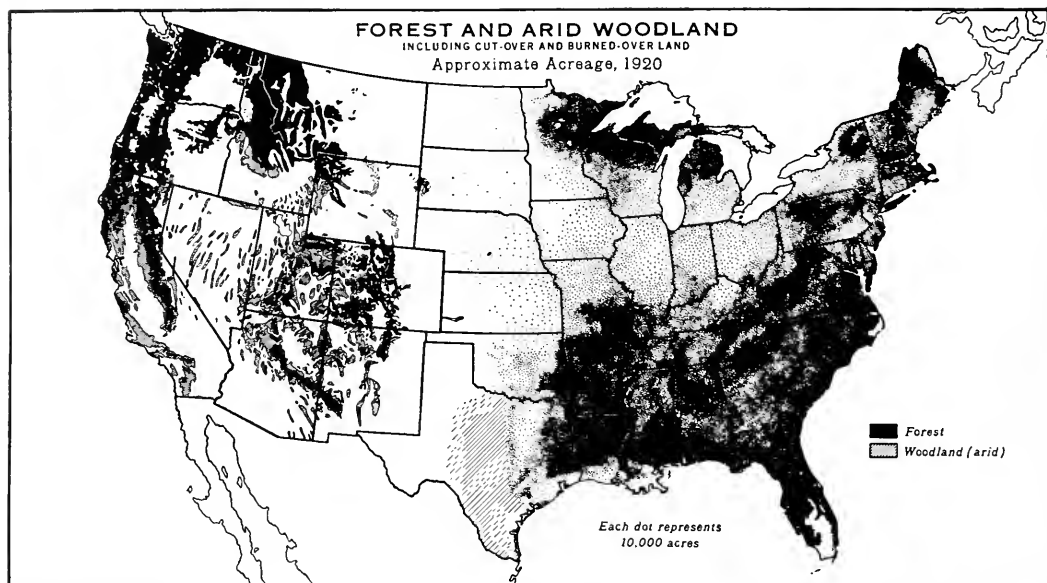
TABLE I.—Imports of tropical and semitropical products into the United States, 1929-37<sup>1</sup>

[Thousands of dollars]			
	1929	1937	Percent change 1929-1937
Sugar	307,687	345,972	+12.4
Rubber and rubber substitutes	244,703	248,807	+1.7
Coffee	303,857	151,829	-50.0
Fruits and nuts	153,780	146,099	-5.0
Tea	25,866	21,366	-17.4
Other tropical products	959,409	493,551	-48.6
Total tropical products	1,995,302	1,407,624	-29.5
All imports, including Hawaii and Puerto Rico	4,579,149	3,241,015	-29.2
Ratio of tropical to all imports (percent)	43.6	43.4	.....
Raw tropical products	1,378,721	794,707	-42.4
All raw imports	2,117,113	1,069,042	-52.3
Ratio of raw tropical to all raw imports (percent)	65.1	75.6	.....
Note: Value of silk imports:			
Raw	432,340	108,500	-74.9
Manufactured	39,037	11,100	-71.6

Source: Bureau of Foreign and Domestic Commerce, *Foreign Commerce and Navigation of the United States* and December issues of *Monthly Summary of Foreign Commerce of the United States* for the respective years.

<sup>1</sup> General imports in 1929; imports for consumption in 1937. Includes imports from Hawaii and Puerto Rico.

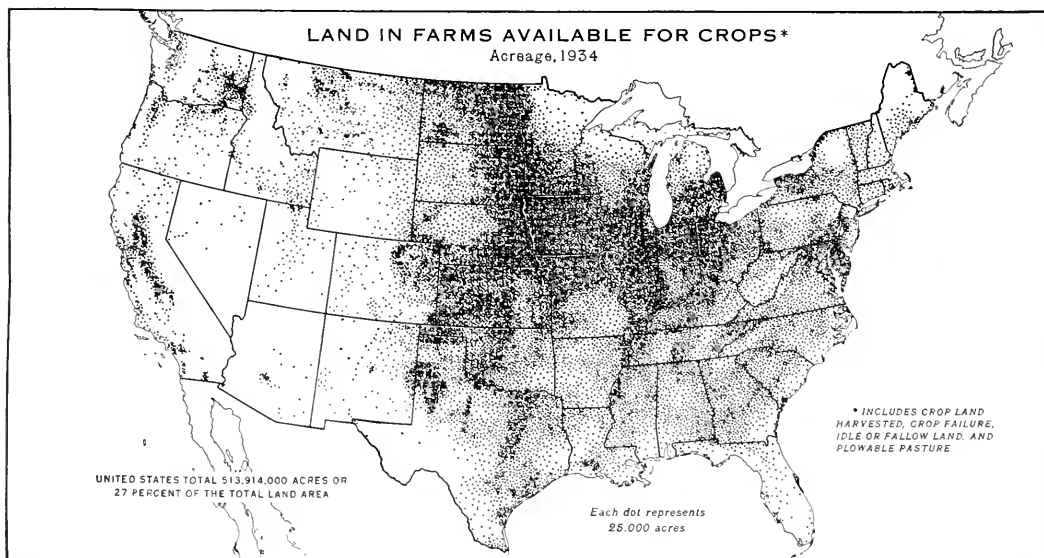
Likewise, with a few exceptions such as rubber and tin, foreign resources are not of strategic importance either in peacetime or in wartime. The strategic minerals are listed in table II showing the peacetime needs as reflected in the amounts imported in 1929 and 1937 and the estimated war requirements. Many of these minerals are essential to the making of high grade



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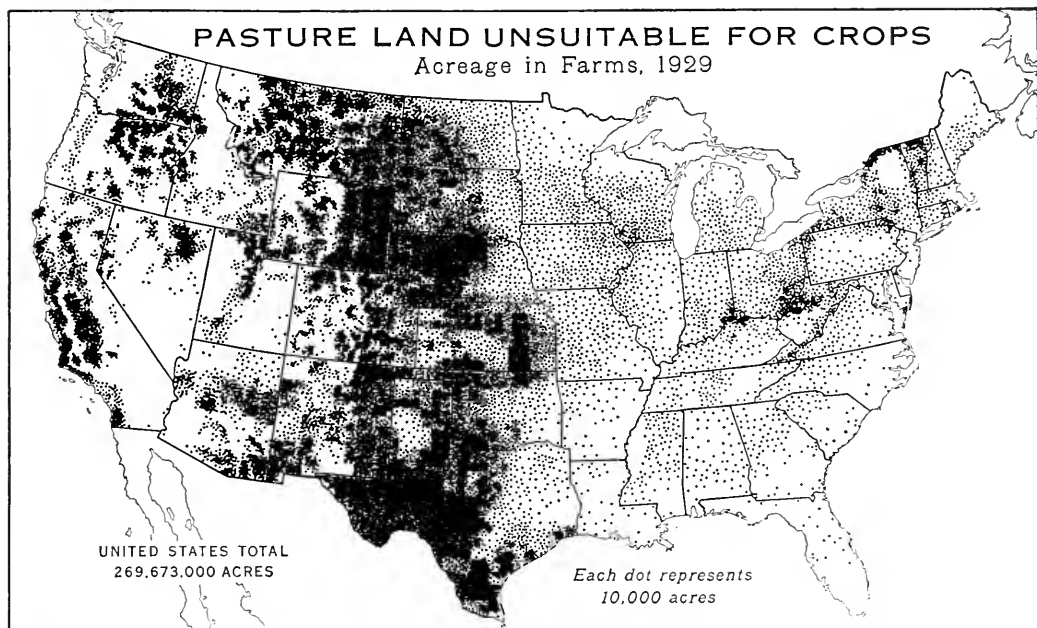
MAP 2



U.S. DEPARTMENT OF AGRICULTURE

NEG. 31175 BUREAU OF AGRICULTURAL ECONOMICS

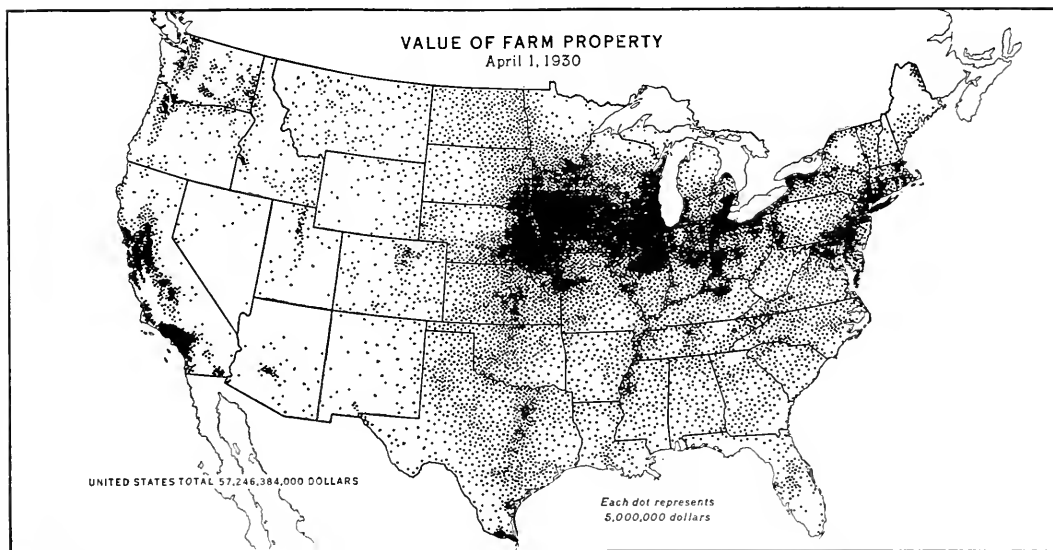
MAP 3



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MAP 4



U.S. DEPARTMENT OF AGRICULTURE

NEG 24773 BUREAU OF AGRICULTURAL ECONOMICS

MAP 5

TABLE II.—Imports and domestic production of crude minerals  
[Imports, 1929, 1935, 1937; domestic production, 1935; and estimated war needs]

Commodity	Imports, 1929		Imports, 1935		Imports 1937 value in 000 s	1935 domestic production quantity in short tons	War needs for 2 years quantity in short tons
	Quantity (short tons)	Value (000 s)	Quantity (short tons)	Value (000 s)			
Tin, ore and bars, blocks, pigs, etc.	97,725	\$91,906	72,168	\$69,921	\$104,418	50	60,000
Nickel ore and pigs, bars, plates, sheets, etc.	148,333	19,419	137,806	17,181	23,987	0	40,000
Manganese ores	362,225	8,451	211,969	4,208	10,711	129,599	1,000,000
Asbestos	292,436	11,153	196,586	5,125	10,170	9,415	300,000
Chromite	355,746	2,696	200,151	3,604	7,321	493	300,000
Bauxite	426,509	1,754	223,954	1,419	3,609	261,981	10,000
Tungsten, ore and concentrates <sup>1</sup>	2,987	1,704	446	381	2,940	2,395	43,000
Mica <sup>2</sup>	3,504	2,180	4,878	909	2,967	37,643	35,000
Antimony	1,804	231	4,587	515	1,775	3,616	35,000
Pyrites	575,680	1,508	444,767	1,313	1,344	575,895	500,000
Mercury or quicksilver <sup>3</sup>	543	1,417	297	382	1,228	666	500,000
Kaolin, china and paper clay <sup>3</sup>	279,912	2,699	125,963	960	1,211	523,656	500,000
Magnesite <sup>4</sup>	53,182	819	26,164	467	858	255,641	500,000
Graphite	23,961	1,065	18,361	326	752	(5)	500,000
Talc and soapstone <sup>5</sup>	31,247	671	25,896	492	473	172,716	500,000
Fluorspar <sup>3</sup>	54,345	481	16,340	179	402	125,741	500,000
Borite <sup>1</sup>	85,279	284	47,047	246	327	218,075	500,000
Other imported crude minerals	141,945	45,707	45,707	52,442	52,442	52,442	500,000
Total imported crude minerals	290,383	153,508	226,338	226,338	226,338	226,338	226,338

Sources: Bureau of Mines, *Minerals Yearbook*, 1937, for domestic production, Bureau of Foreign and Domestic Commerce, annual and monthly publications, for imports.

*National Resources Board Report*, 1934, p. 446, for estimates of war needs.

<sup>1</sup> Exclusive of bars, plates, sheets, etc., which accounted for \$354,000 and \$33,000 of total value in 1929 and 1935, respectively.

<sup>2</sup> Gross imports reported as "ore content."

<sup>3</sup> Could be supplied from United States resources if foreign supply was cut off or price became high enough to induce American production.

<sup>4</sup> Sheets and splittings.

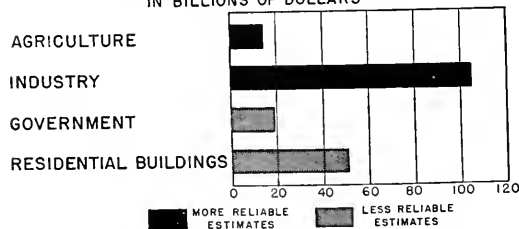
<sup>5</sup> Bureau of Mines not at liberty to publish figures.

NOTE.—General imports in 1929; imports for consumption in 1935 and 1937.

steel suitable for machine tools. These and others are essential in the production of war materials. Yet even for most of these strategic minerals the country is less dependent on foreign resources than the imports would indicate. In the case of the minerals italicized in the table there are deposits which could be worked if foreign supplies were cut off or became too expensive. Only in the case of the 8 items not italicized, of which the most important are nickel, tin and manganese, is the country dependent on foreign sources. A two year's war supply of these items, if they could be obtained at 1935 prices, would cost only approximately 114 million dollars, while a year's peace time requirement in 1937, measured by the imports of that year, was purchased for 163 million dollars. This essential independence of foreign resources means that the natural resources which primarily affect the structure of the American economy are the resources of the continental United States.

CHART I

# VALUE OF BUILDINGS AND EQUIPMENT, 1935 IN BILLIONS OF DOLLARS



Source: See appendix 18, section 5.

## Productive Plant

Of secondary importance for longer periods, but of great importance for shorter periods, is the productive plant which men have developed. In the course of the centuries during which the continent has been inhabited, productive instruments for making use of natural resources have been developed and now exist in the form of the buildings, equipment, and improvements. This productive plant includes that employed in all the branches of economic activity, in agriculture, mining, manufacturing, trade, construction, government, the service industries, and residential housing.

The total value of this plant in 1935 was something like 190 billion dollars divided among major categories in the manner indicated in chart I. These figures represent the very crudest sort of estimates. In making the estimates, farm buildings and equipment have been included as agricultural plant, but land has been excluded on the ground of its being primarily a natural resource. Some part of the value of agricultural land is the result of man-made improvements such as drainage and irrigation but no data were available to make such an allocation. The structural significance of the specific categories will become apparent in the discussion of the structure of production in chapter V.

The structural significance of the productive plant as a resource is primarily a short-run matter of location and of industrial mobility. Manmade plant differs from natural resources in not being fixed and located by nature. A new plant can be built; a new mineral deposit can only be found. Plant location thus does not constitute the same fixed element in the structure



of the economy as does the location of natural resources. At the same time, existing plant, until it becomes obsolete or wears out, is like a fixed natural resource except to the extent that it can be dismantled and in part removed to a new location as some textile mills were moved from New England to the South. Thus, the national plant can be thought of as capable of a gradual change in location as particular buildings and equipment wear out or become obsolete and are replaced by new buildings and equipment in new locations, and as equipment is occasionally transferred from one region to another.

Existing plant represents an element of relative fixity in relation to type of industrial activity as well as of place. Many buildings and even some equipment may be put to various uses. But insofar as buildings and equipment are specialized, like a railway locomotive or a knitting frame, they give direction to activity until they are abandoned or replaced by plant designed for other uses.

The possible speed of this slow mobility of plant is suggested by the rate at which new plant and equipment is built.<sup>1</sup> In the period since 1919 new plant was built at a rate to duplicate the value of the total existing plant in approximately 15 years. A rough indication of the mobility of the major categories of plant are given in table III below:

TABLE III.—Approximate years necessary to reproduce existing plant at the average annual rates of construction from 1919 to 1933

	Years to replace plant
Residential housing.....	19.8
Industrial <sup>1</sup> .....	17.7
Agricultural.....	12.1
Government.....	7.4
Total.....	15.4

Source: For explanation, see appendix 18, sec. 5.

<sup>1</sup> Industrial includes manufacturing, mining, utility, trade, and construction and services other than government and residential housing.

The secondary importance of the existing plant can be seen by comparing its value with the annual production of the country. In 1929 and again in 1937 the national production amounted to approximately 66 billions of 1935 dollars. Since the productive plant amounted in 1935 to approximately 190 billion dollars the plant is only equal to the value of approximately three years of production at the levels of those years. If residential housing and government plant be excepted the value of the total agricultural and industrial plant would be equal to less than 2 years' production at that

level. If the whole waste of the depression due to idle men and idle machines could have been used to build agricultural and industrial plant, the existing plant could have been completely rebuilt. Thus, in comparison with annual production or with the wastes of depression, existing plant is not of dominant long-run importance. It is mainly important for the structure of the economy as its character and location condition the structure of production in the immediate future.

### Manpower

Manpower is by far the most important resource of the Nation and the resource likely to involve the largest waste. The millions of individual workers constitute the backbone of production, and their activity as skilled and unskilled workers, managers, artisans, farmers, teachers, doctors, or independent business men, provides the primary basis for the nation's standard of living. Correspondingly, if available workers are idle, production and level of living are lower than resources make possible. Manpower, potential work, is a perishable resource like water-power. Ten or fifteen million idle workers combined with idle machines can mean a tremendous loss in potential national income. In addition, the failure to use available manpower reduces the effectiveness of future production as idleness breeds frustration and loss of skills. The magnitude of losses from waste of manpower throw the wastes in the exploitation of natural resources into insignificance.

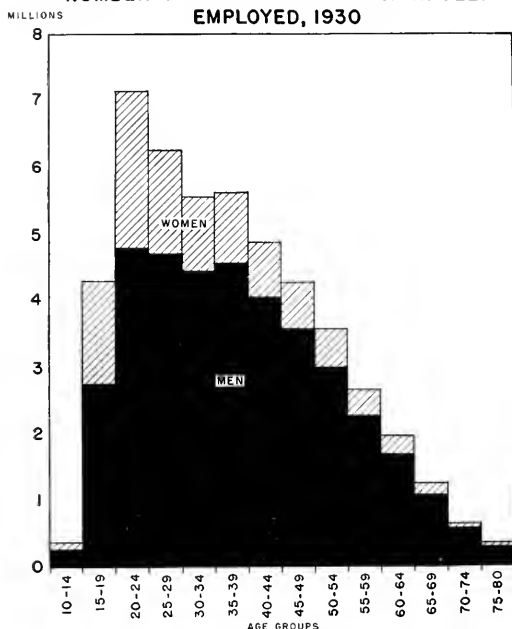
Just what constitutes the nation's available manpower is a question which cannot be easily answered. Much of the productive activity of the country is carried on within the homes as the housewife prepares meals, keeps house, nurses children, launders clothes, and carries on the numerous home activities. Yet the available statistics are geared to throw light only on manpower available for gainful activity, i. e., activity aimed to bring in money income. From the point of view of the structure of the whole economy this part of the total manpower is undoubtedly the more significant in that the organizational structure concerns primarily the relations among these gainfully employed.

An approximate idea of the manpower available for gainful employment can be obtained from the census of occupations. As of April 1, 1930, the date of the most recent occupational census, 48,829,920 persons, or 39.8 percent of the population reported themselves as "gainfully occupied." This figure includes not only wage and salaried workers but business and professional workers, farmers and unpaid family workers on farms. It includes people who were temporarily unemployed but does not include persons who were seeking employment but had not yet held a job. It probably includes

<sup>1</sup> It must not be assumed that plant mobility depends only on the replacement rate. The presence of a skilled labor supply, ancillary industries, and established business relations tend to hold an industry in its old location even when new plants are being constructed.

CHART II

# NUMBER OF MEN AND WOMEN GAINFULLY EMPLOYED, 1930



Source: Based on *Fifteenth Census of the United States: 1930, Population*, volume V, page 115.

some persons who had retired but might be induced to take gainful employment if conditions made such employment desirable. Very probably it includes many persons who were unwilling to report that they had no gainful occupation. The figures for gainfully occupied taken from the occupational census can only give an indication of the magnitude of the available manpower and its characteristics and should not be regarded as precise.

An indication of the age and sex distribution of the gainfully occupied in 1930 is given in chart II. Approximately a quarter of the gainfully occupied were women and three-quarters were men. When the gainful workers are grouped by five-year age intervals the largest number of gainful workers fall in the 20-24 year age group; the bulk of workers fall between the ages of 20 and 55, 77 percent of the men and 76 percent of the women falling into this range.

The proportion of each age group reporting themselves as gainfully occupied throws further light on the characteristics of the available manpower. The percentages for men and women are indicated separately in chart III. For the men, the highest proportion gainfully occupied in any age group is in the group between

35 and 39, 98 percent of this group being occupied. For the women, the highest proportion occupied is in the 20-24 year group, 42 percent being gainfully occupied. Over 95 percent of the men between 20 and 55 reported themselves as gainfully occupied but only 27 percent of the women.

The figures given above may suggest that with any given population the available manpower is a fixed amount. Actually, the number of workers available is not fixed, but varies with conditions. For example, there is a clear relationship between the supply of labor and the level of real earnings. The higher the level of earnings, the smaller the proportion of the population which will seek work. This does not mean that higher wage rates in a community will not draw in more workers. Rather it reflects the fact that as the principal earner of a family gets higher earnings, either because of fuller employment or higher wage rates, there is less need for other members of the family to work. Children can be kept in school longer, the old folks can retire earlier, and the housewife can remain at home.

The influence of the level of earnings on the labor supply is appraised in a recently published analysis of the statistics of the gainfully occupied in cities with different levels of earnings.<sup>2</sup> The results of this analysis are summarized in chart IV which shows the correlation between average earnings in 37 cities and the number of persons over 10 years of age per thousand of population reporting themselves as gainfully occupied.<sup>3</sup> The line on the chart indicates the approximate relation between earnings and the proportion of the population seeking work. It suggests that if the earnings of adult male workers averaged \$2,000 a year, and women's wages bore the customary relation to men's, roughly 44 percent of the urban population would be in the gainfully occupied class; whereas if the average earnings of adult male workers were \$1,000 a year, women's earnings corresponding, over 48 percent of the population would be employed or seeking employment. There is thus evidence of some variation in the total manpower available as earnings themselves vary.

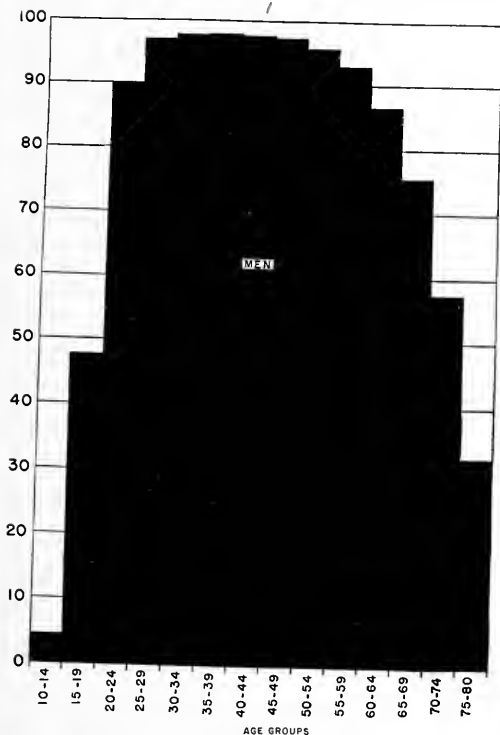
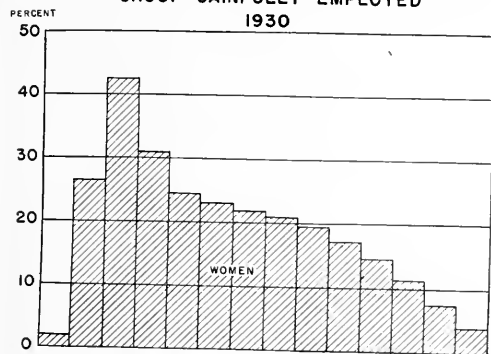
<sup>2</sup> "Studies in the Supply Curve of Labor; the Relation in 1929 between Average Earnings in American Cities and the Proportions Seeking Employment," by Erlka H. Schoenburg and Paul H. Douglas, *Journal of Political Economy*, Vol. XIV, No. 1, February 1937.

<sup>3</sup> Adjusted for differences in age distribution in different cities, age distribution in Chicago being used as the base. This is sufficiently typical of the urban population of the country to make the statement above generally applicable. It is to be noted that a larger proportion of the urban population tends to be employed than the 39.3 percent for the country as a whole. This is undoubtedly due in large part to the drawing of persons from the country to the city as they come of working age so that rural areas have more nonworking children per unit of population than do urban areas.

Four cities out of the 41 cities used in the study are excluded from the chart because of evidences of abnormality—Washington, D. C.; Scranton, Pa.; Salt Lake City, Utah; and Fall River, Mass.

CHART III

### PROPORTION OF MEN AND WOMEN IN EACH AGE GROUP GAINFULLY EMPLOYED 1930

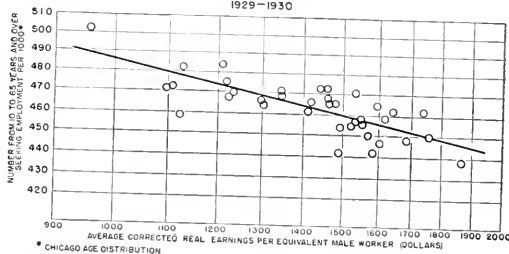


Source: Based on *Fifteenth Census of the United States: 1930, Population*, volume V, page 115.

The main difference in available manpower due to a difference in the level of earnings occurs in the case of young people, old people, and women. If the data in

CHART IV

### RELATION OF EMPLOYMENT PER 1000 POPULATION TO AVERAGE REAL ANNUAL EARNINGS IN 37 CITIES, 1929-1930



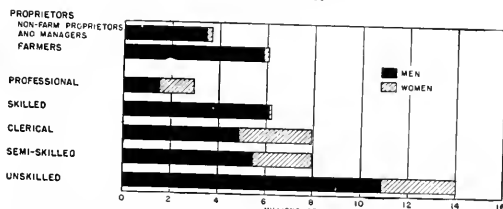
Source: "Studies in the Supply Curve of Labor; the Relation in 1929 Between Average Earnings in American Cities and the Proportion Seeking Employment," Erika H. Schoenberg and Paul H. Douglas, *Journal of Political Economy*, volume XIV, No. 1, February 1937, pages 77-79.

chart IV are considered for men and women separately, the number of women entering the labor market at the level of \$1,000 of earnings per male then would be 80 percent greater than at the \$2,000 level, whereas the number of men would be only 6 percent greater. Of the men, virtually all the additional workers would be between the ages of 14 and 18, although some additions would come from men over 65.

A third characteristic of the available manpower is the degree of skill. A very crude division of the total gainfully employed into groups according to skill is given in chart V. The chart shows those skills which, in 1930, were being used and takes no account of the fact that persons with professional equipment might be driving taxis or skilled carpenters might be running elevators. For the majority of male workers in 1930, the resulting distortion is probably slight, but for certain groups the distortion may be very considerable. Only certain types of jobs are ordinarily open to Negroes. No one knows how many persons with higher education and highly developed skills act as porters in railway stations and as elevator operators. Similarly, certain occupations are usually closed to women in spite of their training and equipment or are

CHART V

### GAINFULLY WORKERS ACCORDING TO SKILL

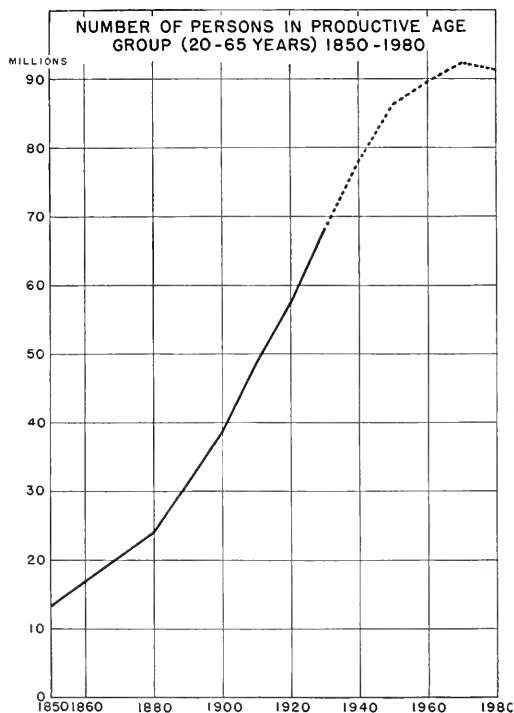


Source: Based on *Fifteenth Census of the United States: 1930, Population*.

available only to a limited number. In particular instances, prejudice or preference denies employment on grounds of sex, age, race or nationality, in spite of skill. Thus the chart may be somewhat misleading as to the degrees of skill which are actually available as a resource to be used. It is useful, however, as a rough guide to the characteristics of the available manpower in terms of skill.

So far the available manpower has been analyzed as of 1930. Actually it is changing through time with changes in the size and age distribution of the population and with the trends of social change. Chart VI shows the total number of persons between 20 and 65 years of age from 1850 to the present and estimates of the number of persons likely to be in this age bracket up to 1980. The estimates are based on the assumption of neither the highest probable nor the lowest probable birth and death rates but represent medium estimates.<sup>4</sup> Though the peak of population on the

CHART VI



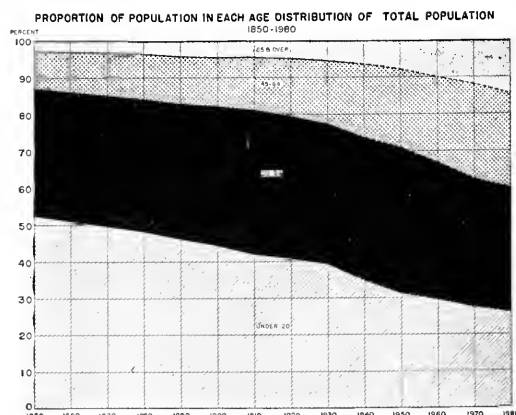
Source: Based on *Fifteenth Census of the United States: 1930, Population*, volume II, page 576; and *The Problems of a Changing Population*, 1938, National Resources Committee, page 25.

<sup>4</sup> National Resources Committee, *The Problems of a Changing Population*, 1938, p. 25.

basis of the estimates used here would come in the 1970's, the peak of manpower in the more productive ages is likely to come in the 1960's. The changing composition of the population is shown in chart VII. From the point of view of production, the age composition of the population has been steadily improving, only 45 percent of the population being between 20 and 65 in 1850 and over 58 percent being in that age bracket now. Further decline in birth rates seems likely to increase the proportion slightly further, though the proportion of persons between 20 and 44 is likely to be declining, throwing a greater weight of production on persons between 45 and 64.

More important than the change in the size and age grouping of the population, are the trends of change in social attitude toward, and opportunities for, employment on the part of children, old people, and women. When Alexander Hamilton wrote his famous report on manufactures in 1791 he assured the Congress that manufactures could be developed without withdrawing men from agriculture because they could use the untapped labor resources of women and children. The first factories operated upon this principle. In 1814 a New England textile manufacturer advised that the most efficient mill construction provided one large room rather than several smaller ones because that made it possible to have only one adult in the plant—a single supervisor. Measured in terms of 125 years ago the manufacturing manpower of the nation was to a considerable extent the child power. Today child power is still a minor part of the manpower in agriculture but it no longer constitutes a significant part of the manpower in industry. In 1930 4½ per-

CHART VII



Based on *Fifteenth Census of the United States: 1930, Population*, volume II, page 576; and *The Problems of a Changing Population*, 1938, National Resources Committee, page 25.

cent of workers in agriculture were under 16 years, whereas in no other line of work did child workers amount to as much as 1 percent of the labor force.

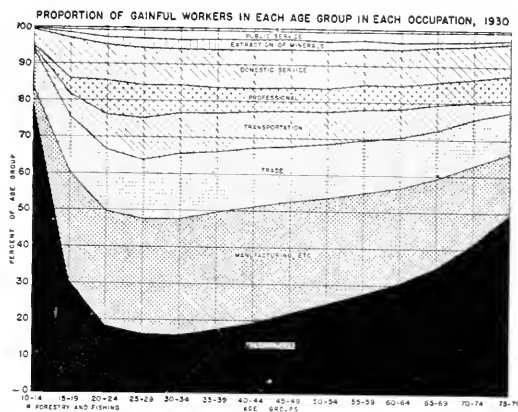
The tendency to eliminate child labor from industry and to retain it in agriculture is part and parcel of the process of industrial development which has drawn a sharp line between employment and lack of employment in industry where no such sharp line exists in agriculture. In agriculture the whole family has tasks to perform, running all the way from chores around the barnyard to a heavy day's work ploughing in the fields. This allows individuals to become fully productive through a gradual process of participating in the work of the farm, first in minor and then in major activities. A child worker on the family farm is not usually a full-time producer. On the other hand, in industry and in certain agricultural processes where hired labor is used, a child worker is usually a full-time employee. In the highly organized processes of production outside the home there has ceased to exist the gradual process of inducting individuals into the productive system which characterizes agriculture.

At the opposite end of the age scale, industry and agriculture again differ in the ability to adjust to the capacities of older workers. On the farm an individual's work tapers off toward the end of his life just as it develops gradually in his early years. A farmer may continue to work around the farm after his son takes over the heaviest burden, or may employ a hired man to work under his management. The practice in different industries varies as to the age at which older workers are retired but the break from employment to unemployment is likely to be sharp.

This difference between agriculture and industry is clearly brought out in chart VIII which indicates for each age group the proportion of the gainfully occupied attached to each major branch of industry. In this chart agriculture stands out in sharp contrast to other fields of activity in the occupation of persons under 20 while agriculture and the professional services stand out in the occupation of persons over 60. Although the bulk of employees in all fields are between 20 and 60 years of age, 28.5 percent of all the gainfully employed in agriculture were under 20 and over 60 as compared with 15.7 percent in manufacturing. More striking is the fact that the great bulk of employed persons in the very young and the very old age brackets are to be found in agriculture rather than in manufacturing and mining.

The increasing industrialization of economic activity, together with recognition that industry does not provide for a gradual induction into industry and gradual retirement, has brought strong social pressures against child labor and in favor of retirement pensions so that the age span from which manpower can be drawn is

CHART VIII



Source: Based on *Fifteenth Census of the United States: 1930, Population*, volume V, page 116.

gradually narrowing. The work of children in industry has been very largely eliminated, a development accelerated by the heavy unemployment of recent years, while the development of old age pensions and social insurance gives prospect of reducing the number of older persons forced to seek employment. In the railway industry, for example, where it has been the policy to retain older workers on a seniority basis, there were hundreds of men in the seventies running the trains and even some over 80 when the railroad retirement act went into effect.<sup>5</sup> In this case the introduction of a pension system for men over 65 permitted the withdrawal from industry of men who were too old to remain but who continued to work because of economic pressure. If these trends continue, the manpower of the country will more and more be restricted to those age groups well able to bear the burden of national production.

An estimate of the total available labor force, taking all these factors into account, is given in chart IX, together with the actual employment from 1920 through 1936. The difference between the labor force and the equivalent of full-time employment represents a crude approximation to the number of persons unemployed, indicating the extent to which the resource of manpower is not used.

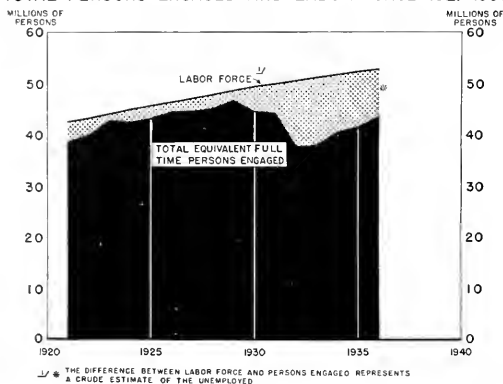
### Nonconsumable Resources

With these three resources which are consumed in the process of satisfying wants—natural resources, plant, and manpower—there must also be considered the three great resources which condition production without being consumed in the process—physical environment, technology and social institutions.

<sup>5</sup> *Annual Report of Railroad Retirement Board, 1938.*

CHART IX

## TOTAL PERSONS ENGAGED AND LABOR FORCE 1921-1936



Source: Total equivalent full-time persons engaged is based upon data of the National Bureau of Economic Research and the Department of Commerce. Total labor force is based on preliminary estimates furnished by the Works Progress Administration, National Research Project. For the actual data, see table I, of Appendix I, of the report of the National Resources Committee, *Patterns of Resource Use*.

### Physical Environment

Physical environment as a resource conditioning production requires little discussion. The varying and on the whole favorable climate of the United States is in a very real sense one of its richest resources, with temperatures ranging from those necessary for the growing of cotton and citrus fruit to those suitable for spring wheat and fur-bearing animals, and a rainfall ranging from desert dryness to the heavy rainfall of the Pacific Northwest and the Atlantic Coast. The topography of the country, too, is on the whole favorable. Open land without insurmountable mountain ranges, open sea fronts with plentiful harbors, great lakes, and navigable streams provide a setting for the productive activity of the country's 50 million workers.

### Technology

The second great resource conditioning production is the existing technology—the knowledge of ways to apply manpower to physical resources for meeting human wants. Modern technology is the product of centuries of trial and error, of selection and adaptation. Each effective technique, whether physical or social is a tried and effective way of doing something, of acting to attain a given end, of getting from here to there. As such, it is a resource no less than the physical materials to which it is applied and the human skill and energy which apply it. Personal skill alone does not insure productivity. Often unskilled use of the best technique is more productive than skilled use of an obsolete technique. Unskilled but intelligent use of a steam shovel can be more productive than the most skilled use of pick and shovel. Understanding of the best

known way of doing things can make the difference between a high and a low level of living. The Indians on this continent had much the same natural resources as exist today and had great personal skills, but they did not have modern techniques.

By its very nature technology is a resource which cannot be measured. Whether a new technique is the result of the inventor's imagination or the recognition of a fortunate chance event, the time between the initial step and the adoption of a method as a common practice may be a matter of generations. At any given time, knowledge and skills, and their implementation in different fields, is at all stages from imagination or recognition to routine practice. It may be possible to trace for any particular technique the steps from the mind of the inventor or discoverer on. It is also possible to recognize, in the place held by science and the energy devoted to research, conditions favorable to the further development of techniques. But it is not possible to reduce to a common measure and express in meaningful terms the total technological resource of the country at a given time.

Yet modern technology is at the very heart of the basic economic problem of the day. Mass production, rapid transportation and communication, improved techniques of management, and mass financing are as characteristically modern as the automobile, the radio, and the talking movie. Both reflect modern techniques and typify modern production.

### Social Institutions

Social institutions are a resource to which people are so accustomed that they seldom think of them in this light and often are unconscious even of their existence. Yet almost every productive act is conditioned by a complex of social institutions which have developed in the past. Without this complex of social institutions social living would be almost impossible.

In this chapter an attempt has been made to bring into focus the resources of the Nation. We have ample natural resources with no significant limitation except that involving tropical products; extensive plant, but plant which could be rapidly replaced if occasion arose; a labor force of over 50 million persons with varied skills and aptitudes only partly employed; an equable climate; effective techniques of production; and a complex of social institutions which bind the whole population into a functioning economy. It is not for lack of consumable resources that consumer wants are not more extensively satisfied. Nor is it due to unfavorable climate or to ineffective production techniques. The extent to which it arises from faulty organization of production will be considered in the third section of this report after the structure of production has itself been examined.

## CHAPTER IV.—THE STRUCTURE OF PRODUCTION—GEOGRAPHICAL STRUCTURE

The two preceding chapters have sketched the structure of wants and of resources, the two elements basic to the process of production. In this and the following two chapters, the structure of production itself will be blocked in, first in terms of its geographical characteristics, then in terms of the functions performed, and finally in its financial aspects.

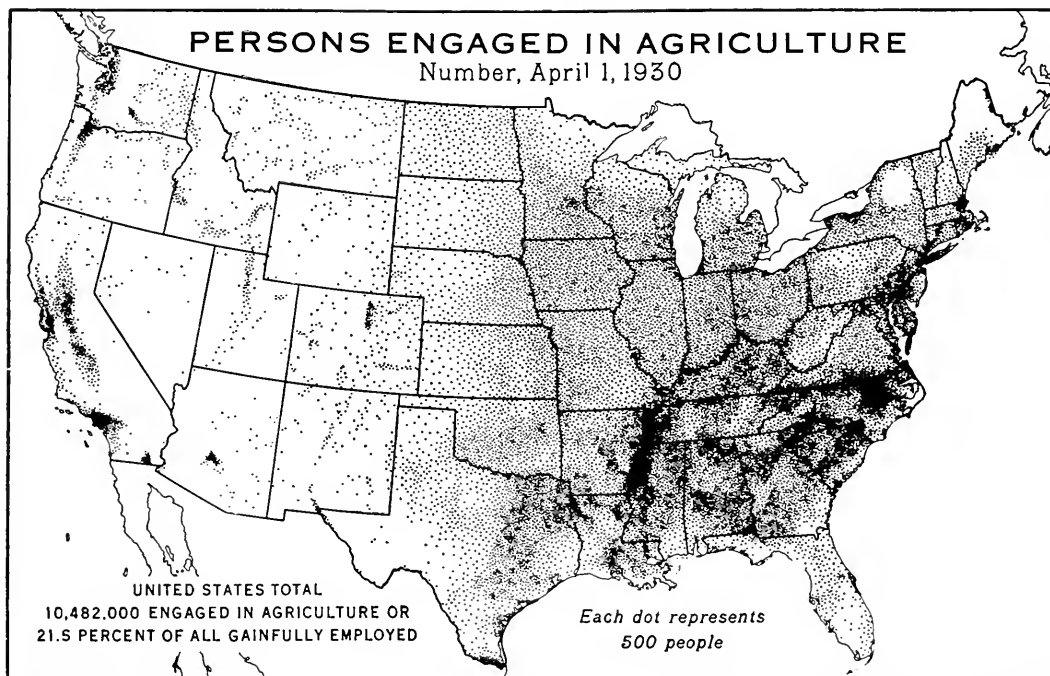
### Location of Production in Relation to Resources and Consumers

The geographical structure of the American economy reflects three factors: The location of resources, the location of consumers, and the historical process by which economic activity has been carried on in the past. If there were complete mobility of people and capital, the location of resources might be the major, if not the sole, geographic factor giving structure to the economy. But neither labor nor capital has ever been completely

mobile and the inertia of both exerts a major force in giving to economic activity its geographic form. The net result of these factors, operating in the past and the present, appears in the distribution of population and more particularly in the distribution of purchasing power shown in chapter II, maps 1 and 2. The fact that consumers are distributed according to a geographical pattern of their own, at least partially independent of the distribution of natural resources, produces a situation in which they, equally with natural resources, constitute a basic element underlying the geographical structure of economic activity.

The geographical distribution of the principal lines of economic activity is shown in maps 1-5. Farming and mining are necessarily attached to the natural resources which they exploit. The distribution of land suitable for crops and for pasture<sup>1</sup> was a major determinant

<sup>1</sup> See ch. III, maps 3, 4, and 5.



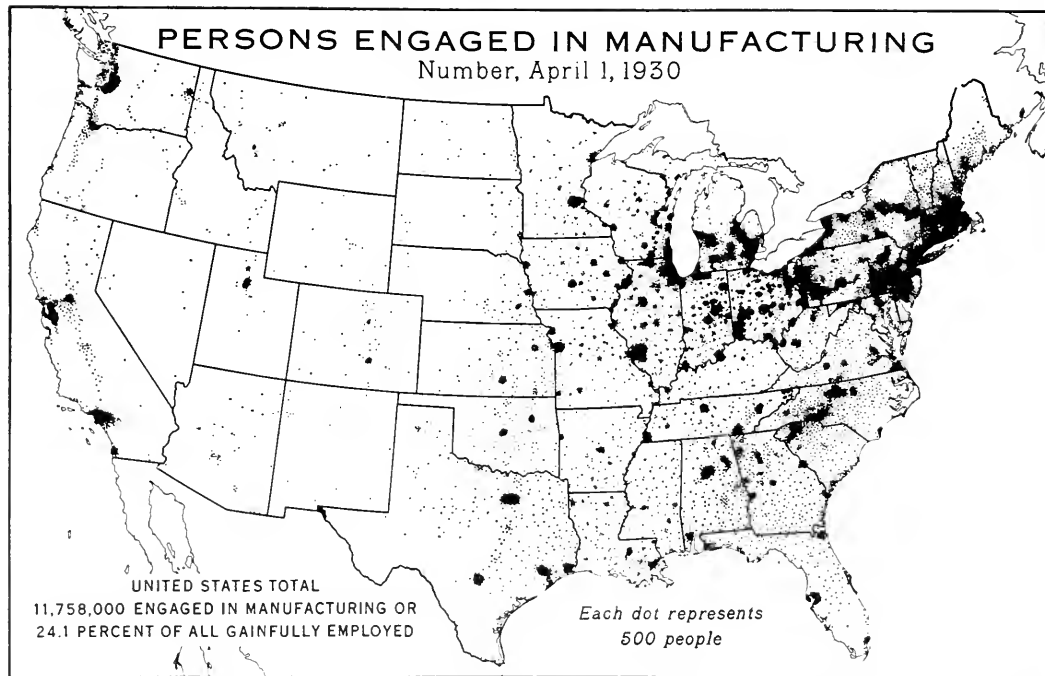
of the location of all economic activity in the days when the country was predominantly agricultural, although even then physical barriers to population movement and the historic process of settlement had produced a pattern of economic activity which by no means exactly followed the distribution of land resources. Today the soil remains the resource to which are attached the largest single blocks of population and of economic activity. An examination of map 1, however, and especially a comparison of the distribution of agricultural population shown there with the distribution of crop land shown in chapter III, maps 3-5, indicates that the distribution of agricultural population does not correspond closely to the distribution of valuable agricultural land. Rather, the heaviest concentration of agricultural population is in the southern areas where land resources are less adequate than in the Middle West. A secondary concentration of persons engaged in agriculture appears in the Middle Atlantic and the northeastern areas where intensive use of the land for truck farming, dairying, and poultry raising is induced by the presence of city populations and city markets. In the distribution of agricultural activity there is thus

reflected not only the distribution of natural agricultural resources but the distribution of consumers and the historical process which has produced a relatively immobile population<sup>2</sup> densely located on the limited agricultural resources of the South.

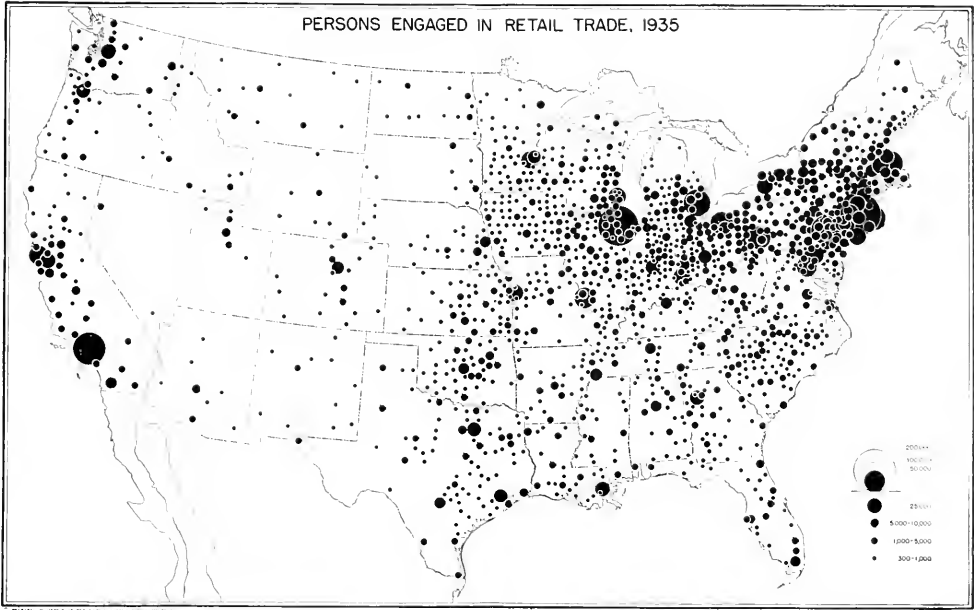
In contrast to farming which is attached to the land, retail trade follows the location of consumers. A comparison of map 3 with the population maps in chapter II (maps 1 and 2) brings out the fact that it is effective consumers, those with purchasing power, who determine the location of trade and other consumer-located activities. The relatively thin employment in retail trade in the South corresponds more closely to the low level of purchasing power in that area shown in chapter II, map 2, than to the high density of population shown in chapter II, map 1.

Manufacturing and wholesale distribution, maps 2 and 4, are not tied directly either to resources or to consumers, but tend to be highly localized in the urban centers, primarily in the northeast section of the country. The degree of such geographical concen-

<sup>2</sup> Although southern farms have been supplying workers to northern and southern industries for decades.

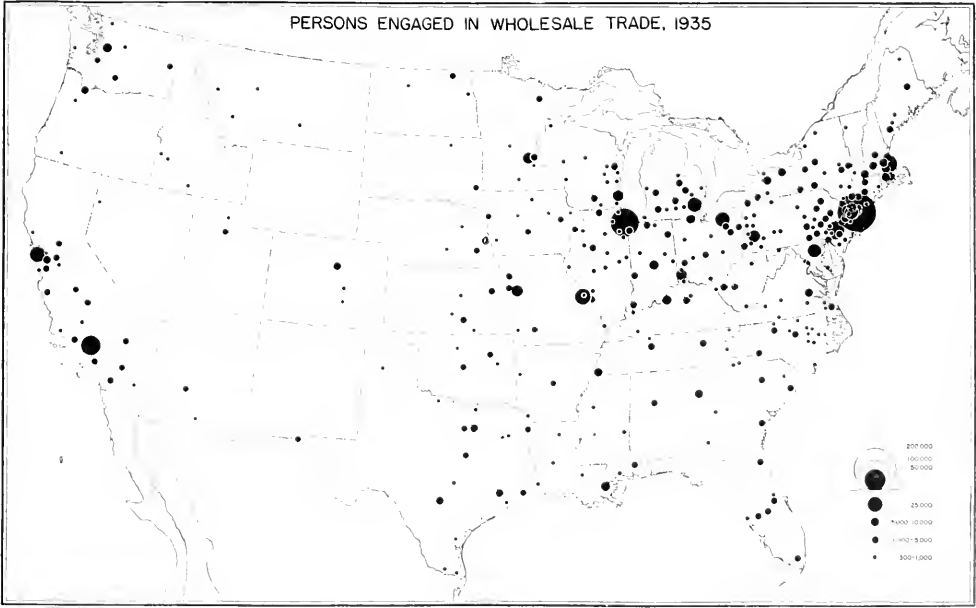






MAP 3

Source: Census of Manufactures, 1935.



MAP 4

Source: Census of Manufactures, 1935.

TABLE I.—Location of persons employed in relation to resources and consumers, 1935

	Number of Persons (thousands)
Located close to resources:	
Agriculture.....	9, 925
Fishing.....	65
Mining.....	745
Manufacturing <sup>1</sup> .....	743
Total.....	11, 478
Located close to consumer:	
Services to consumer.....	6, 563
Services to the economy <sup>2</sup> .....	6, 346
Services to business.....	252
Retail trade.....	4, 970
Construction.....	719
Manufacturing.....	887
Total.....	19, 737
Relatively footloose:	
Wholesale trade.....	1, 350
Manufacturing.....	6, 881
Miscellaneous.....	1, 965
Total.....	10, 196
Total.....	41, 411

<sup>1</sup> Including sawmill and timber workers.<sup>2</sup> Including Federal, State and local Governments. Federal Government employees located in Washington and some State employees in State capitals are not located close to consumer.

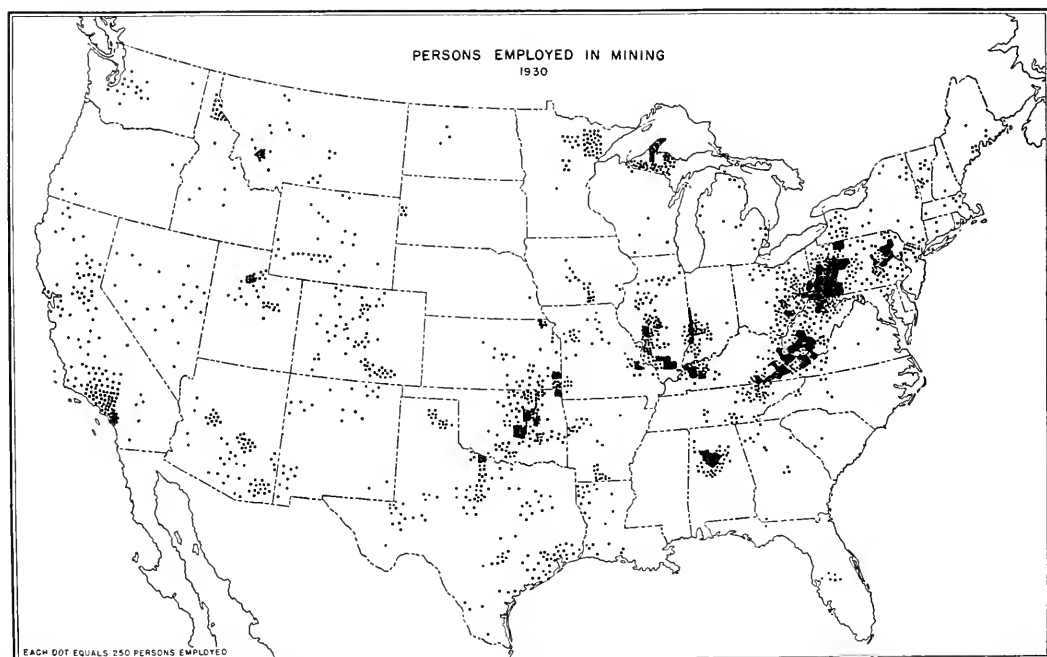
tration is emphasized in map 6 which shows the manufacturing population of the 200 counties in which 75 percent of all manufacturing activity is carried on.

The approximate proportions of persons engaged in the various activities whose location is primarily determined by resources, consumers, or neither, are indicated in table I. Approximately 28 percent were located close to resources, 48 percent close to consumers, and 24 percent were relatively footloose.

The above series of maps covers 61.6 percent of the persons employed in all types of activity. Satisfactory maps for construction and service could not be obtained. The latter would closely approximate the distribution of population and of purchasing power shown in chapter II, since services must of necessity be carried on close to the consumer.

In maps 7 and 8 the flow of goods from points of production to points of consumption is indicated in terms of the railroad freight traffic passing from one

Source: *Patterns of Resource Use*, National Resources Committee, tables 1 and 2. For the classification of manufacturing industries, see appendix 8, table 1.



MAP 5

Source: Bureau of Mines

freight area to another on a given day. This represents only about a third of all freight shipments, for the bulk of freight, as indicated in table II, passed between points within these areas; motor transport of goods also involved mainly short hauls. Water transport also accounts for important flows, particularly of ore and wheat. The flows shown are between the freight areas indicated by the dotted lines, not between the points where the arrows originate or terminate. Interregional shipments of freight, however, indicate roughly the direction and magnitude of the long-distance flows of goods.

The major elements that enter into the pattern of industrial location are typified in the four examples of manufacturing activity shown in maps 9 to 12. In each of these examples, the principal influence determining location is different. Certain types of industrial activity, as well as the extractive processes, must be located close to the natural resources. Map 9, showing the location of cottonseed oil manufacture, illustrates this type of activity. The processing of products extracted from soil or mines tends in general to take place close to the resources themselves, especially where the product is perishable, e. g., in the canning of fresh

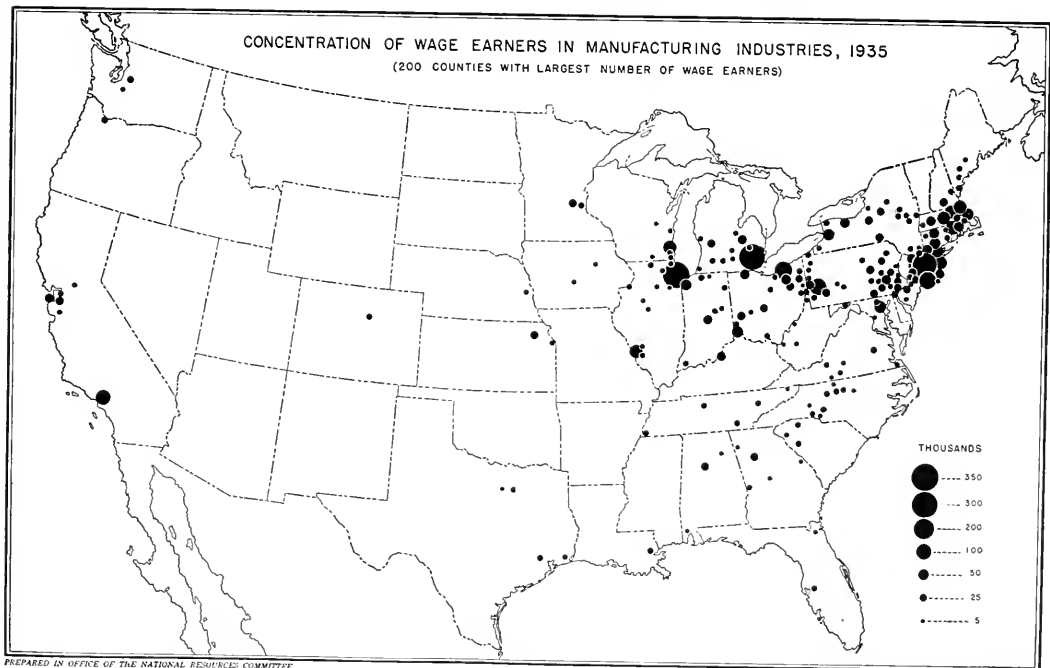
TABLE II.—Proportion of freight carload traffic for intraterritorial and interterritorial shipments, Dec. 13, 1933

Origin territory	Total	Intraterritorial	Interterritorial	
			Western flow	Eastern flow
New England.....	100	71.8	25.2	6.9
Trunk line.....	100	77.2	15.9	6.9
Central freight.....	100	66.9	17.0	16.1
Piedmont.....	100	35.0	33.6	21.4
Southern.....	100	68.2	5.7	26.1
Western.....	100	63.5	6.4	20.1
Southwestern.....	100	62.3	17.3	20.4
Pacific northwest.....	100	61.6	.....	38.4
Pacific southwest.....	100	65.7	.....	34.3
Total.....	100	65.9	15.5	18.6

Source: Interstate Commerce Commission, Freight Traffic Report, Dec. 13, 1933.

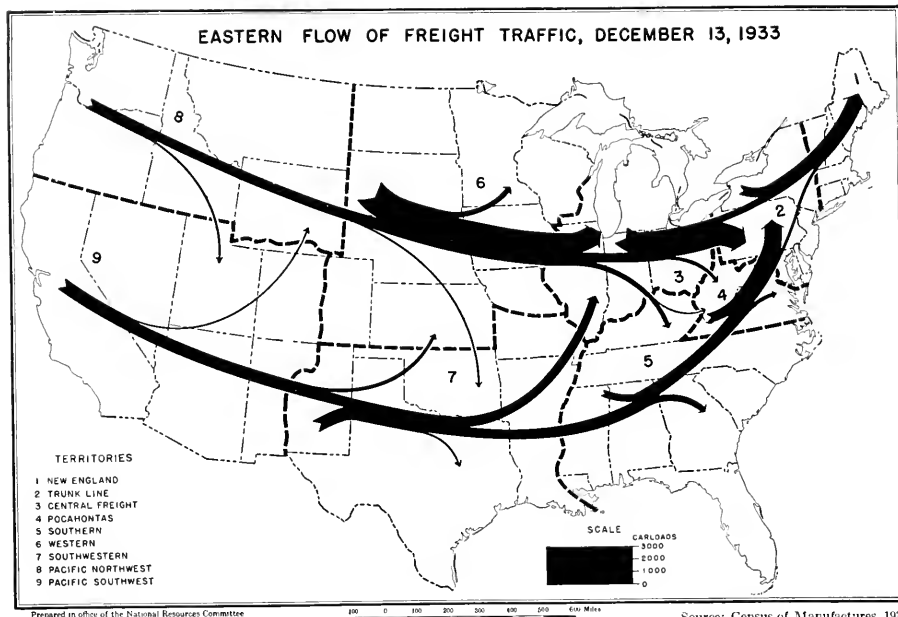
vegetables and quick freezing of berries and fruits, and where the product is bulky and is reduced in bulk or weight by the fabricating process, e. g., lumber mills which reduce the weight and bulk of timber by the amount of waste and sawdust.<sup>3</sup>

<sup>3</sup> See appendix 16, maps A-15, A-40, A-42. All bulky or heavy products are not necessarily processed close to the resource, for it is the difference in transportability of the unprocessed and processed product which is involved since the processed product has to travel on to the consumer. The tendency to locate automobile assembly plants in consumer centers reflects a situation in which the product becomes more bulky in the process of fabrication and transportation is easier prior to the fabrication of the finished product than it is subsequently.



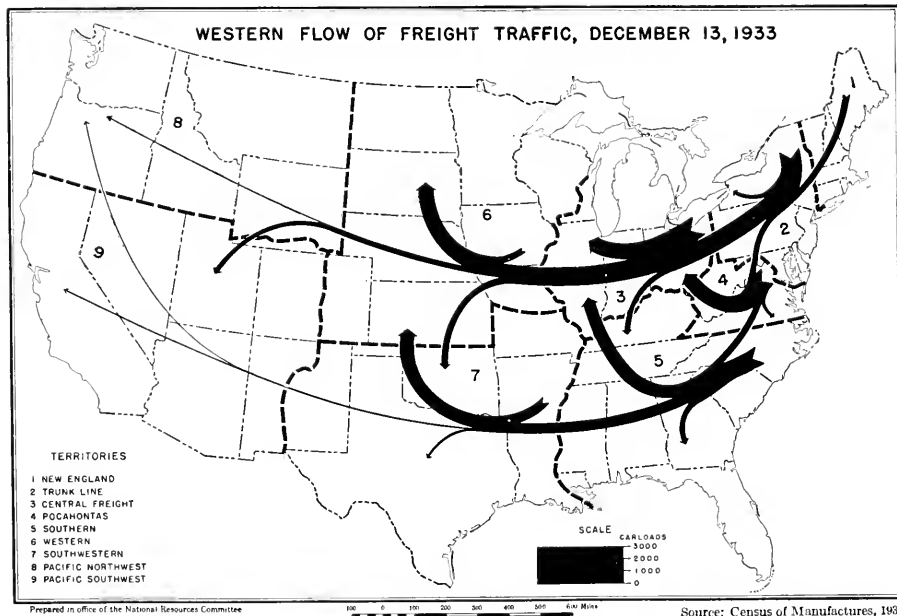
MAP 6

Source: Census of Manufactures, 1935.



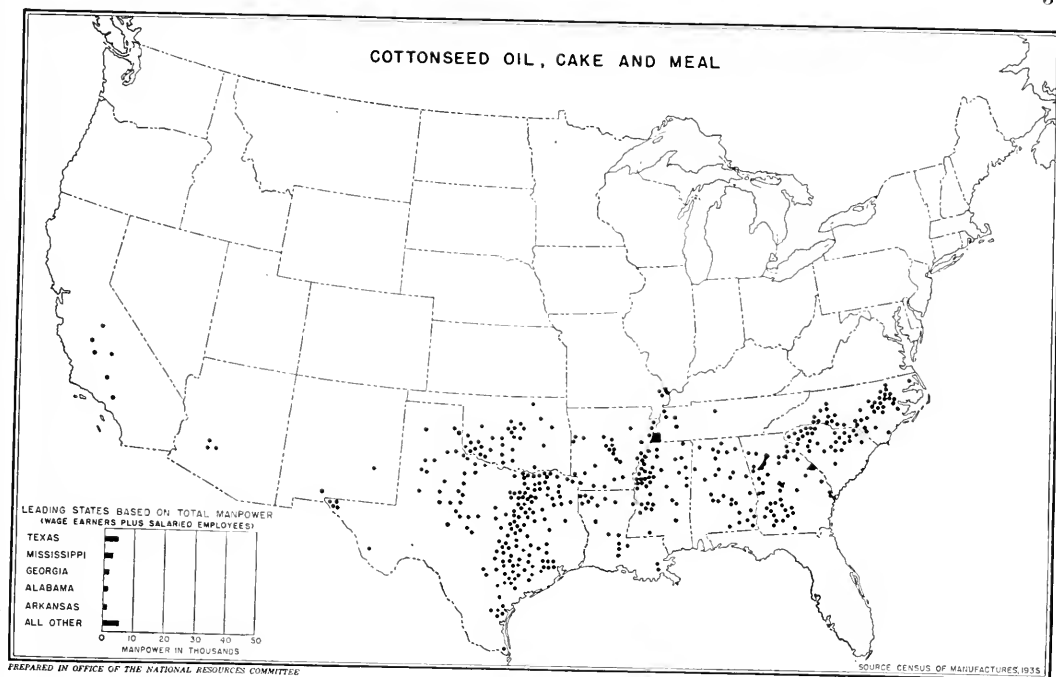
MAP 7

Source: Census of Manufactures, 1935.

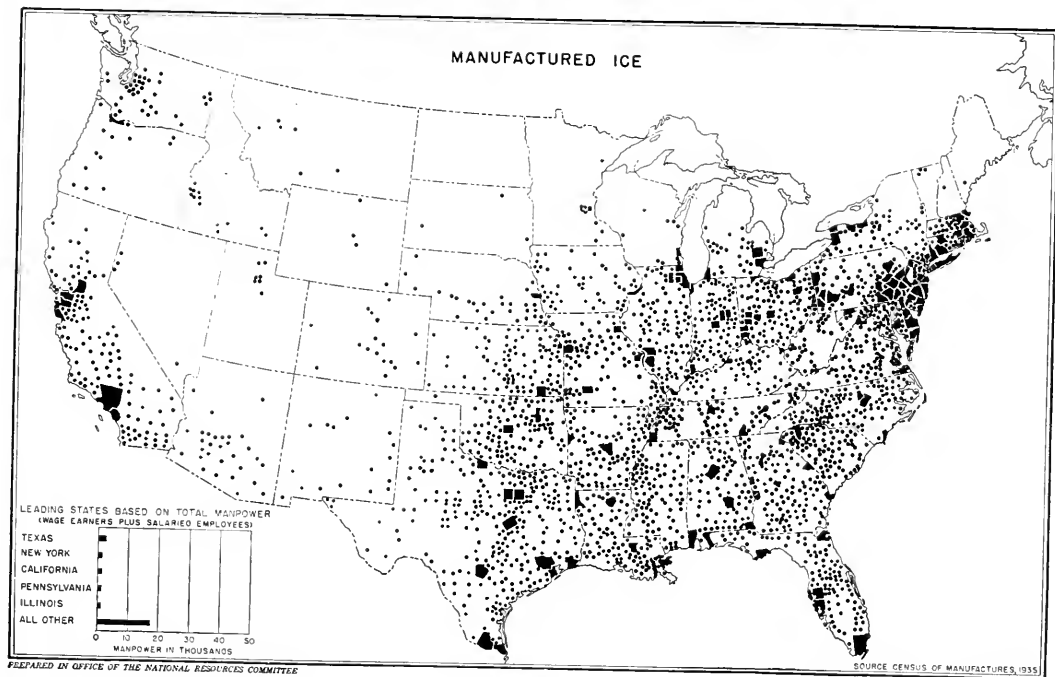


MAP 8

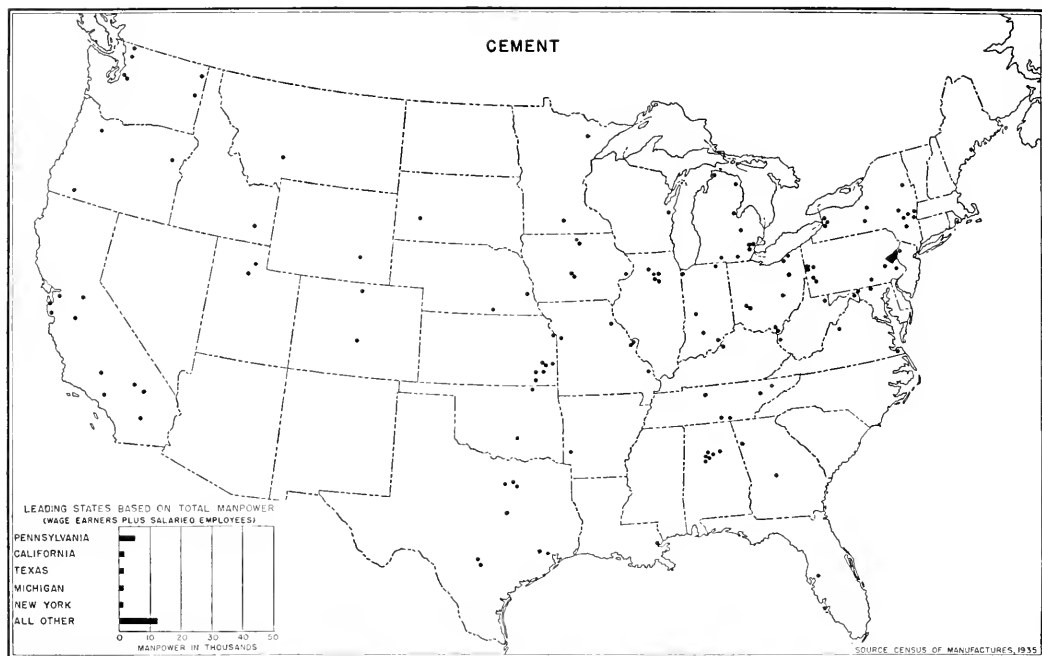
Source: Census of Manufactures, 1935.



MAP 9

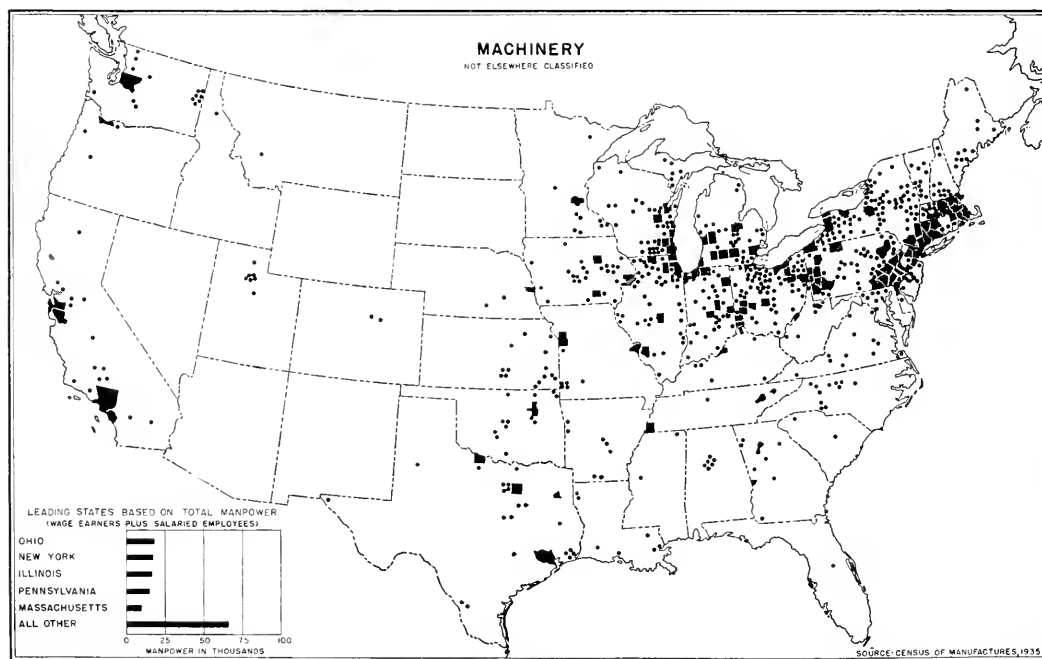


MAP 10



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MAP 11



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MAP 12

At the opposite extreme from industries which are tied to the resources which they use are those which are tied to the consumer. Map 10, showing the location of commercial ice manufacture, gives an example of this type of activity. Direct services to the consumer and retail trade are necessarily most closely tied to the individuals who are served.

A third type of geographical distribution is represented by those industries whose resource material is widely distributed, whose bulk is great and whose destination is the ultimate consumer. Map 11, showing the distribution of cement plants, indicates the type of regional distribution characteristic of this sort of activity. The materials out of which cement is produced are widely distributed. Cement plants exploit these resources largely in relation to the regional market to which the cement is to be shipped. Building bricks are perhaps an even better illustration of this type of geographical distribution. Map A-53 in Appendix 16, showing the distribution of clay products, includes the distribution of brick kilns. Unfortunately the brick industry is not separately reported and its regionality cannot thus be clearly shown.

The great bulk of manufacturing activity is intermediate between resources and consumers and follows a pattern of location which is determined by a number of factors in addition to those discussed above. Between the resource and the consumer lie successive steps in fabrication. To a considerable degree, the geographical structure of manufacturing follows the flow of goods from the location of natural resources where extraction takes place through preliminary processing, frequently close to the resource, through successive stages of processing, until a final stage takes place close to the consumer. But historically there has developed the definite manufacturing area of the northeast shown in maps 2 and 5. The manufacture of machinery, shown in map 12, is representative of the types of industry located for the most part within this industrial area. The manufacturing activity carried on in the 2,801 counties outside of this area is very largely of the types illustrated in maps 9-11.

The location of an industry brings with itself the location of industries subsidiary to it. The manufacture of heels and shoe findings clings to the shoe industry, wherever it may be; the manufacture of machinery is closely related to the use of machinery; textile machinery, localized in New England when the cotton textile industry centered there, is now also produced in the North Carolina piedmont in close proximity to the newer textile mills. Where industry is located, there population congregates, and there drift industries which serve the consumer directly, contributing to the further industrialization of already industrialized areas.

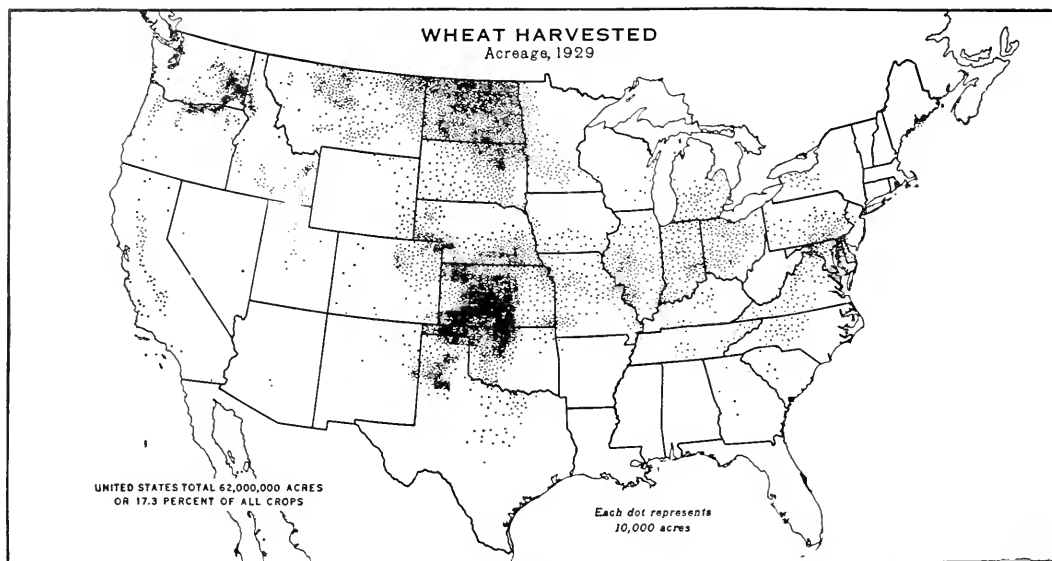
## Flow of Goods from Resources to Consumers

When the flow from resource to consumers in each industry is traced in detail, there emerges a vivid picture of the dynamic aspect of the geographical structure. This flow through successive processing and fabricating stages to the final consumer is shown for selected groups of products in the series of maps which follow. Additional industries are mapped in the same fashion in Appendix 16. These maps show the location of industry, county by county, only on the basis of plant location. The solid areas indicate five or more plants in each of the counties covered. The use of plants as a basis for mapping distorts the picture, for a tiny plant employing half a dozen people is represented in the same manner as one employing 10,000. In order to correct, in part, the misleading impression resulting from this method the five leading States with the number of persons employed are shown on each map.

## Agricultural Products

The flow of agricultural products from farmer to consumer is illustrated by maps 13-16, showing the distribution of wheat, corn, flour milling and baking. The major wheat and corn areas stand out in maps 13 and 14. Map 15 shows the processing of these and other grains. The distribution of flour mills close to the wheat-raising areas and of mills scattered through corn-growing regions may here be seen. Flour milling as shown on this map not only represents the processing of two separate products, wheat and corn, but it also represents two separate types of industry, the large commercial flour mill supplying the national market and the local gristmill grinding local grain for local consumption. The many mills scattered through the mountain and piedmont areas of Virginia, North Carolina, and Tennessee are almost entirely of this latter type. The bulk of the employment in the industry and of the value of the product is represented by the States of the Middle Western area and western New York. Bread manufacture, shown in map 16, is distributed through the centers of population. If this map is compared with the population map shown in chapter II, the two appear almost identical with respect to urban areas. Even in the rural areas, moreover, bread manufacture is represented, but here it follows the pattern of rural purchasing power rather than rural population. Commercial bakeries are well represented in the farming section of the West, but in poorer rural areas, especially in the South, baking remains a home industry.

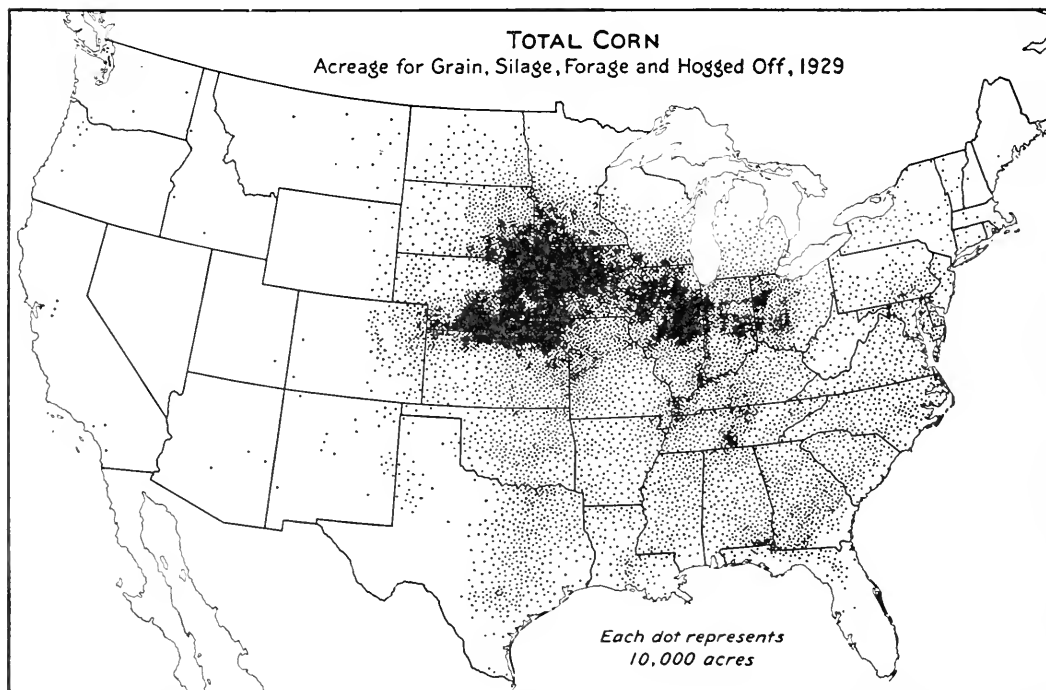
The flows of other agricultural products are shown in the several series for livestock, grains, fruits and vegetables, and tobacco in appendix 16, maps A-1 to A-20.



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MAP 13

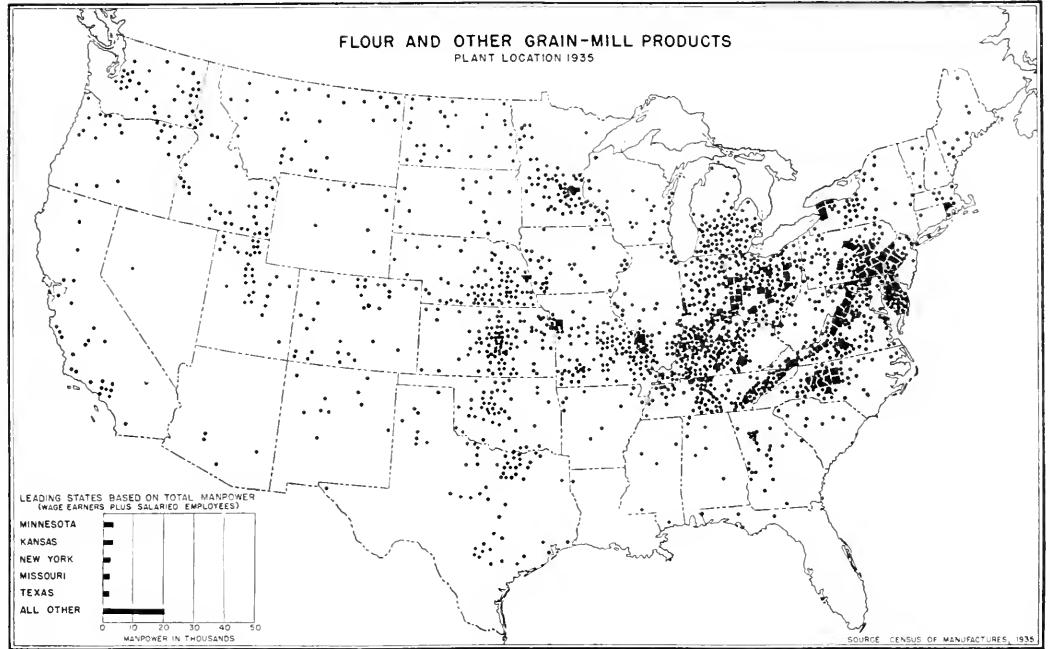


U.S. DEPARTMENT OF AGRICULTURE

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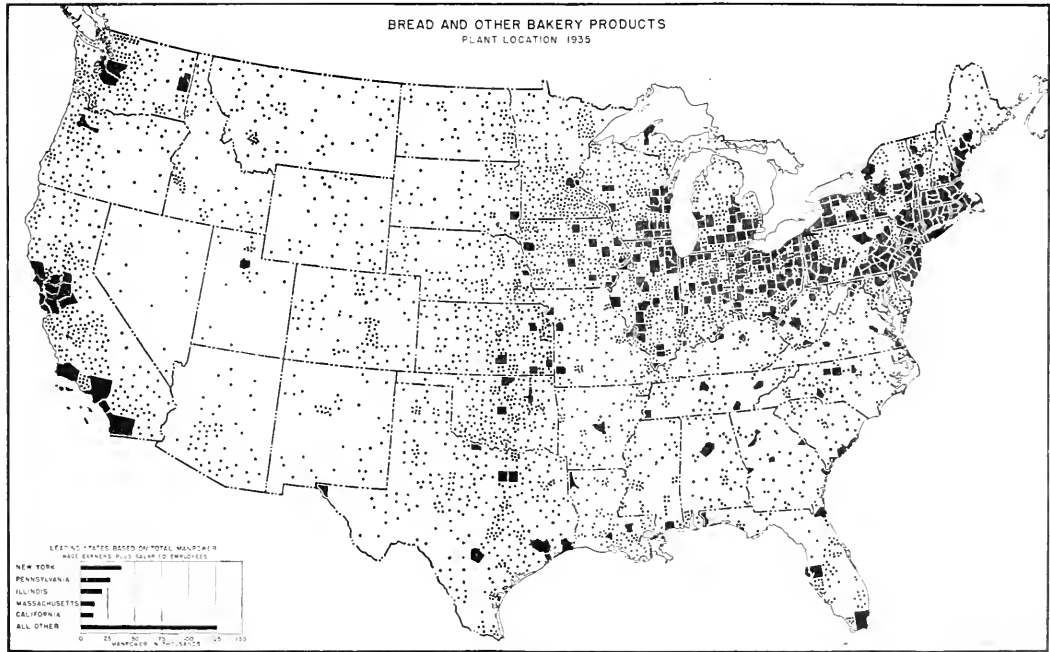
MAP 14





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MAP 15



MAP 16

## Textiles

The distribution of the textile industry, illustrated by cotton textiles shown in maps 17-20, bears only a secondary relationship to the location of resources. Only a scattering of cotton textile plants is to be found in the vicinity of the centers of cotton production. Although the piedmont mills are near to an old cotton raising area, the location of the cotton textile industry primarily reflects the historical development of the industry in New England and its migration to the southern piedmont in quest of a cheap labor supply. Its locational pattern is that of a relatively foot-loose industry bound neither to resources nor to consumers nor yet lying directly along the line of flow from one to the other. Textiles reach their finished stage, for the most part, in clothing. The two main types using cotton cloth are shown in maps 19 and 20. The manufacture of men's cotton garments is very widely dispersed, with plants located in almost every city. Women's clothing, on the other hand, is strongly concentrated in New York. The chart with map 20 showing the States leading the industry in employment brings out the localization of this industry even more clearly than does the map of plant location. A major contributing factor in this instance is the fact that New York has been the style capital of the United States. In these two contrasting garment industries, men's cotton garments and women's cotton clothing, textiles manufactured and finished in the industrial area of New England and the southern piedmont move in the first instance into widely scattered industrial and consumer centers and in the second instance into New York and certain other cities.

Flows through other branches of the textile industry, wool, silk, rayon and their products, may be traced in appendix 16, maps A-21 to A-28. Taken as a whole the textile and clothing industries shown in this series of maps include 21.3 percent of all persons engaged in manufacturing. They account for a much larger proportion of the manufacturing population in the New England area, in the metropolitan area of New York and Philadelphia and especially in the southern States, where they represent 32, 36, and 38 percent respectively of the manufacturing population. To only a very minor degree are they to be found in that part of the industrial area which falls in the Great Lakes States.

## Iron and Steel

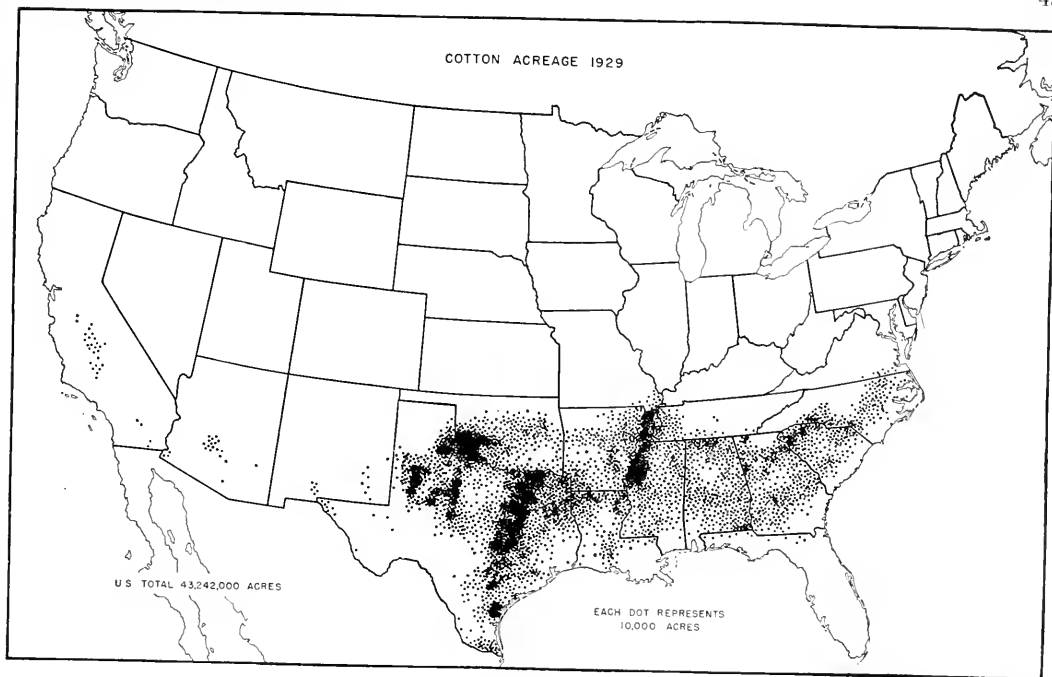
Industries producing iron and steel account for 30 percent of the gainfully employed in manufactures. In the various ramifications shown in maps 21-32, this major industry exemplifies virtually all elements in the geographical structure of American manufactures. In its first stage of mineral extraction and processing it

is closely tied to its resource base of iron and coal. Map 24 shows the location of blast furnaces either in the center of the coal and iron fields of Pittsburgh and Birmingham, respectively, or at the points on water routes where coal and iron may be combined in the South Chicago and Gary region, Youngstown, Cleveland, and Buffalo. The remaining blast furnaces shown on the map represent either the remainder of the old forges which used to dot the countryside wherever the many small deposits of iron ore were located, or those that are located in the iron fields of Minnesota and Michigan or the coal fields of Colorado, or near the eastern seaboard and the sources of imported ore.

Blast furnace products move by successive stages toward consumers. Steel works and rolling mills shown in map 25 spread out around the blast-furnace centers. In addition they are to be found closer to the industrial centers of the northeast and scatteredly in the cities which lie along the eastern edge of the Great Plains from Fort Worth and Houston to Minneapolis and St. Paul. The next stage of fabrication represented by stamped and pressed metal products shows industry moving away from the blast furnace centers and spreading out through the industrial counties. At this stage the industry has moved away altogether from the Birmingham center. It has established marked concentration in New England and is strongly represented in the Great Lakes States. The maps of later stages present a very different picture. Sheet-metal works and especially machine shops represent the iron and steel industry in the final processes which are carried on of necessity close to the consumer. To a large extent those branches of the iron and steel industry involve the production of specialty articles on order and the fabrication of iron and steel to meet the particular needs of consumers.

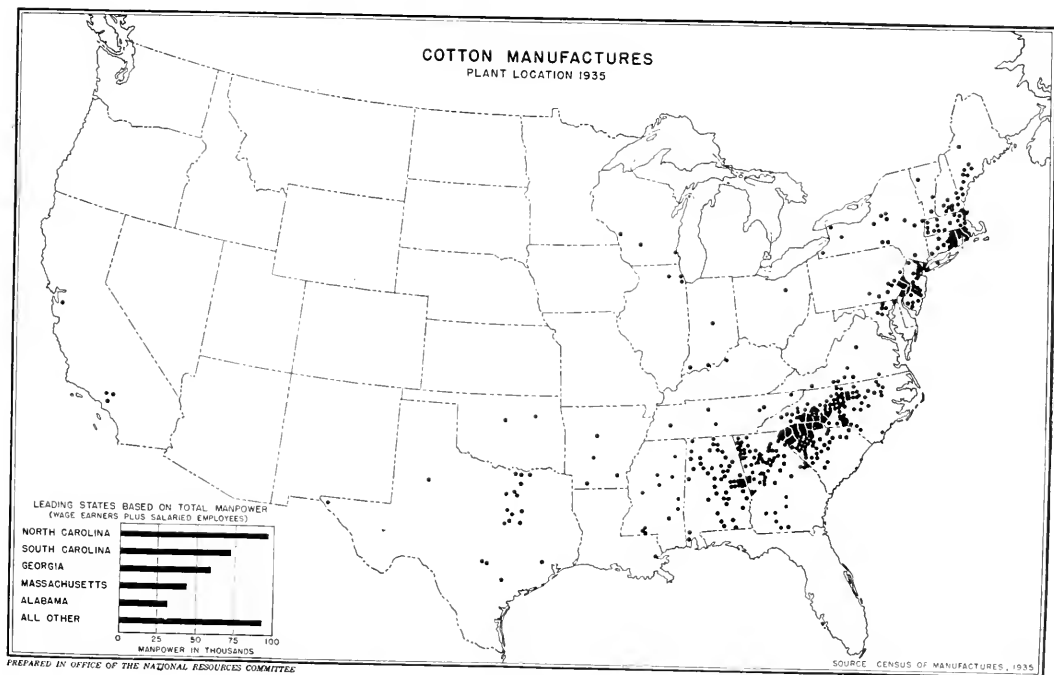
Whereas a large part of the products of blast furnaces and rolling mills moves by successive stages out from the centers localized by the resources toward activity localized by the consumers, a substantial proportion of the industry's products goes into the type of manufacture which characterizes the industrial area. In fact it is very largely the industries fabricating steel which constitute the main industrial area, especially the Great Lakes region. Here is to be found the automobile industry,<sup>4</sup> map 29, and the manufacture of a wide variety of machinery, equipment, and other steel products. In particular, here are located those industries which serve industry itself, notably machine tools, shown in map 30. The other principal steel fabricating industries located in the industrial area are shown in appendix 16, maps A-29 to A-40. Other industries of

<sup>4</sup> Though the map shows a wide scattering of plants, those lying outside of the East North Central and Middle Atlantic States account for only 5 percent of the employment in the industry.



MAP 17

Source: Department of Agriculture



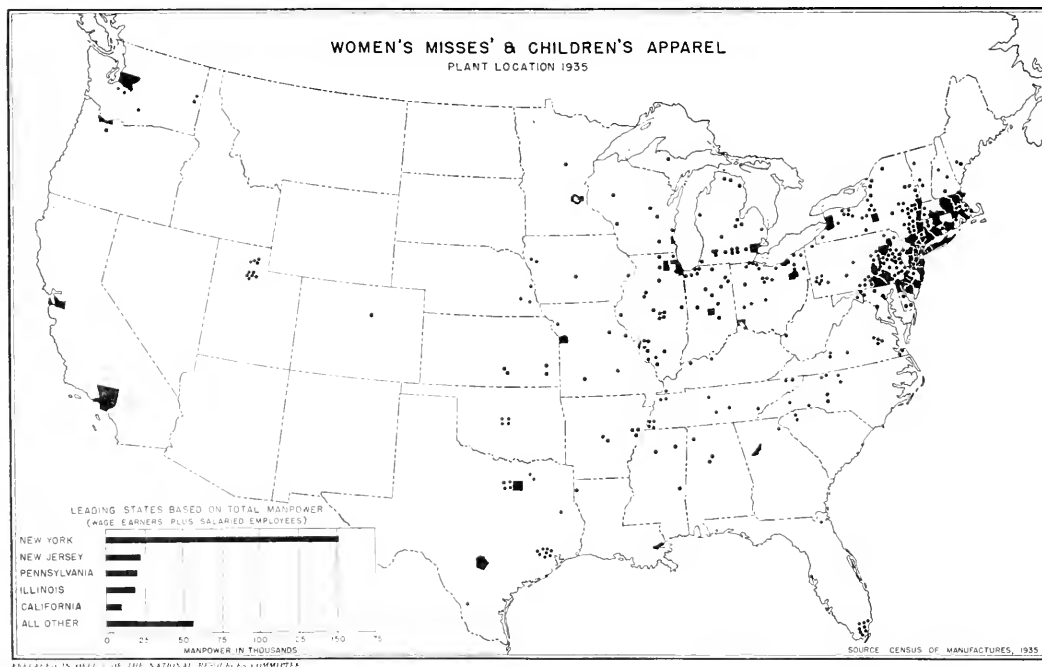
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MAP 18



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MAP 19



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MAP 20

similar character are pulled out of the industrial area at least in part by the other activity with which they are associated. Two examples appear in maps 31 and 32. The textile machinery industry lies almost wholly outside of the area where most machinery is made, and is closely tied up with the location of textile factories in New England, New Jersey, and the South. Ship and boat building must perforce be carried on in proximity to oceans and waterways.

The iron and steel industry thus has a geographical structure which includes the exploitation or preliminary fabrication of bulky and heavy resources; successive stages in fabrication carried on largely within the industrial area but moving toward the consumers in later stages of fabrication; and branches of the industry involving special fabrication located close to the consumers. In addition there are the major machine producing industries which use steel and largely constitute the industrial area, automobiles, electrical appliances, engines, etc., together with the industrial service industries, notably machine tools. Finally, there are a series of industries fabricating steel in various stages which are mainly or partially located in the industrial area but which have been partly pulled out of that area by the fact that they serve agriculture, serve a particular industry such as textiles, have advantages to gain by proximity to the consumer, or are dominated by some other special factor.

### Forest Products

The several branches of industry utilizing forest products present perhaps the clearest case of the flow from resource to consumer. One branch, the production and utilization of pulp, paper, and newsprint, is presented for illustration in maps 33-36.

The first process, that of converting wood into pulp, tends to occur close to the resource for this is a process which converts a bulky product into one easily transported. Map 33 shows the location of pulp mills in juxtaposition to those types of timber products which are suitable for this use. The manufacture of paper shown in map 34 to a slight extent follows the pattern of pulp mills but mainly moves into the industrial centers and toward the centers of population where paper products are used. Map 35 and especially map 36, showing the use of paper for printing and publishing, repeat the map of consumer distribution. As would be expected the printing and publishing of books shows a greater concentration in the cities than does the printing and publishing of newspapers and periodicals. The latter is hardly distinguishable from the map of consumer distribution. Other wood-using industries and supplementary paper-using industries are shown in appendix 16, maps A-41 to A-48.

These sample series for selected agricultural, textile,

iron and steel, and forest products industries give a representative picture of the characteristics of industrial location. The more extensive series in appendix 16 give a much more complete picture but not one which differs significantly from that which emerges from the industries selected for illustration.

### Major Industrial Areas

The concentration of industrial activity shown in map 6 has been emphasized by the pattern of industrial location which stands out in the map series for individual industries and in the maps contained in appendix 16. The areas of concentration comprise the 33 industrial cities with the metropolitan areas surrounding them, designated by the Census of 1930 as "industrial areas," and 100 additional industrial counties.<sup>5</sup> A closer examination of these areas reveals their central importance in the geographical structure of the economy.

The proportion of the total population living in these areas has grown steadily, as industry has played an increasingly important role. In 1870, 23 percent of the population of the United States was living within the 33 census areas. In 1930, the proportion was 35 percent. Figures are not available with which to show the roughly corresponding increase in the proportion of all gainfully employed located in these areas. The location of manufacturing wage earners, however, shows clearly that the proportionate growth in population in these areas was a reflection of the shift from agriculture to industry. Almost as large a proportion of the manufacturing wage earners were located in these areas in 1870 as at present, 53.3 percent in 1870 as compared with 55.5 percent in 1935.<sup>6</sup>

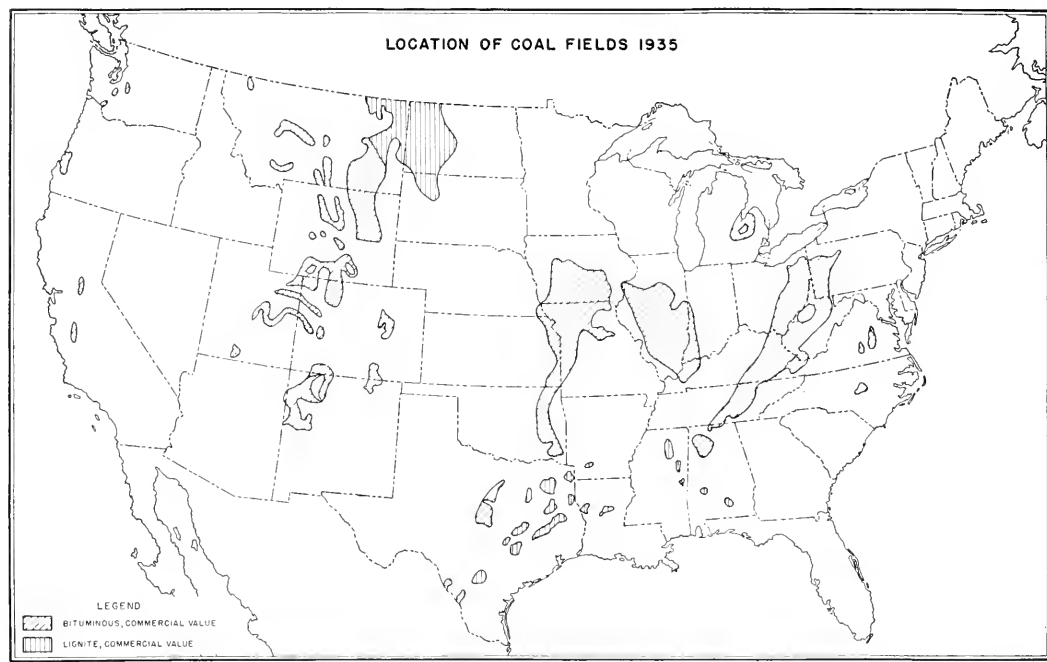
The pattern of manufacturing activity had already largely assumed its present form by the latter half of the nineteenth century. The above evidence of the proportionate stability of wage jobs in the 33 census areas is confirmed by data for the 200 industrial counties. In 1899, the earliest year for which data on these 200 counties are available, 73.2 percent of all manufacturing wage jobs were located in these counties. In 1935, the proportion was 74.47 percent. Chart I shows for 13 of the largest industrial areas, for the 33 industrial areas, and for the 200 industrial counties the proportion of all manufacturing wage earners since 1870.

The development of the major industrial area of the northeast, and the secondary areas of the southern Piedmont and the west coast, has been largely the product of history, conditioned by the location of resources.

<sup>5</sup> The 33 areas include 100 of the 200 counties shown on map 6, plus 11 small counties included in metropolitan areas which are not included in the 200 industrial counties.

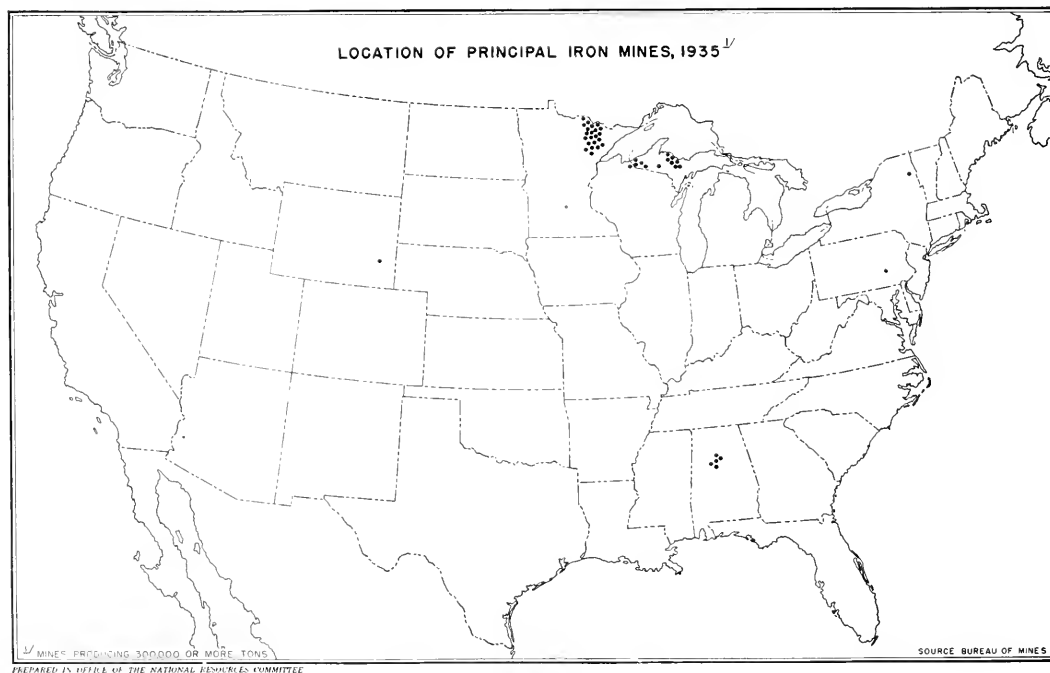
<sup>6</sup> *Growth of American Manufacturing Areas*, Glenn E. McLaughlin, Philadelphia, 1938.

<sup>7</sup> *Is Industry Decentralizing?*, Daniel B. Cramer, Philadelphia, 1945.

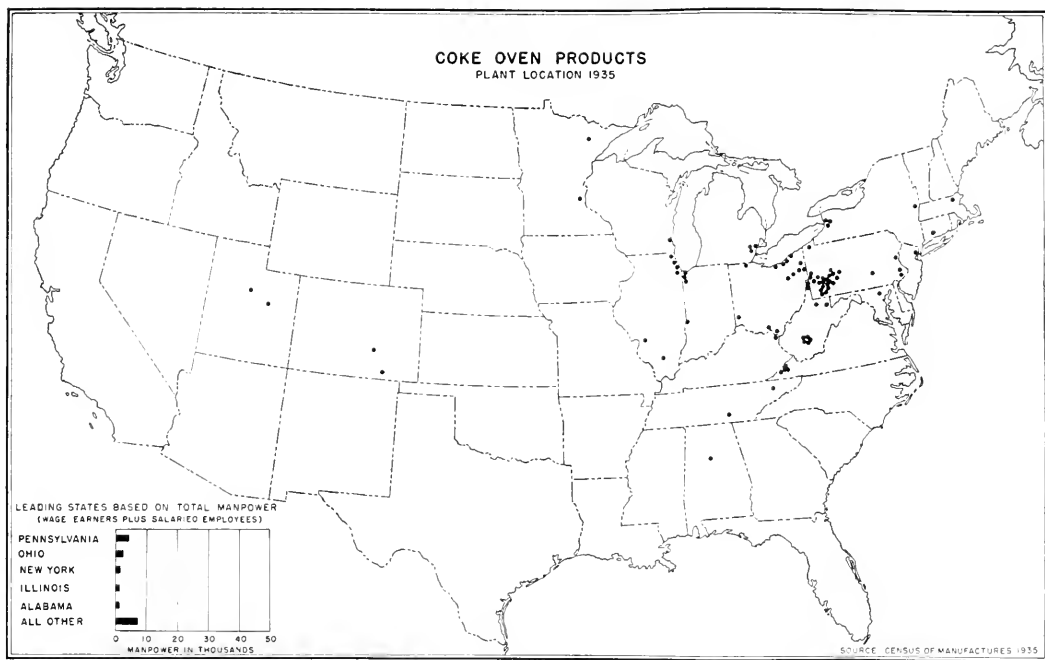


MAP 21

Source: Bureau of Mines.

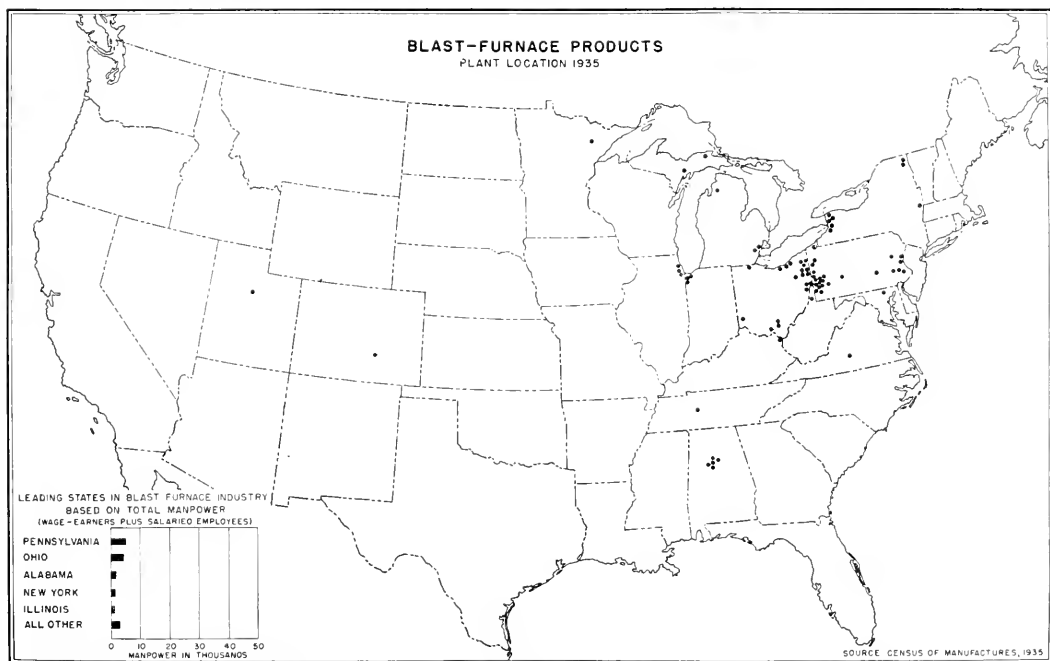


MAP 22



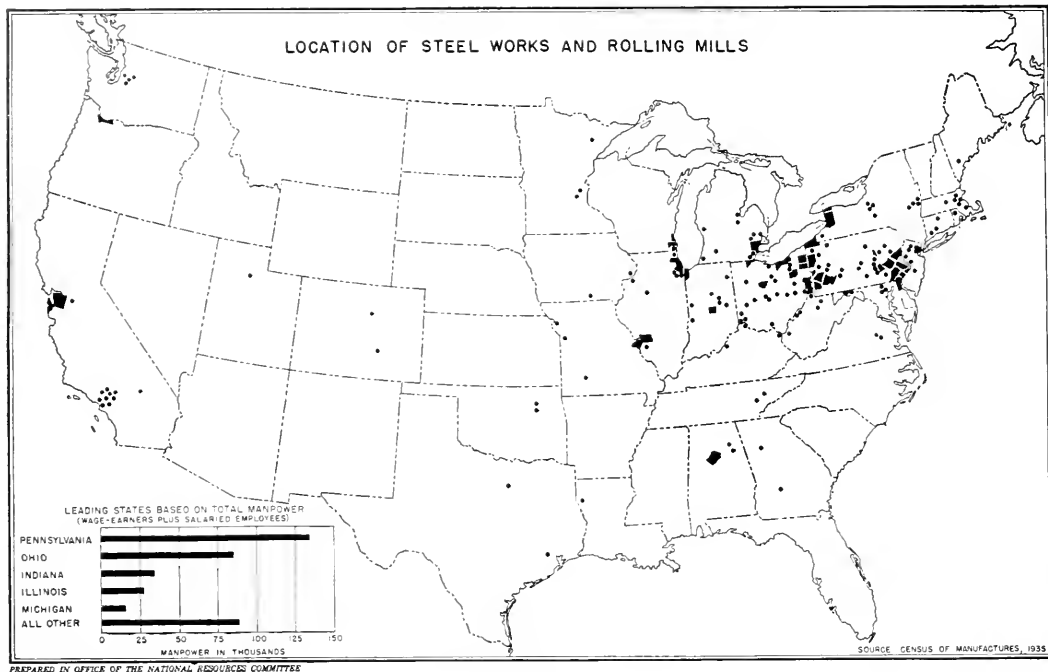
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MAP 23

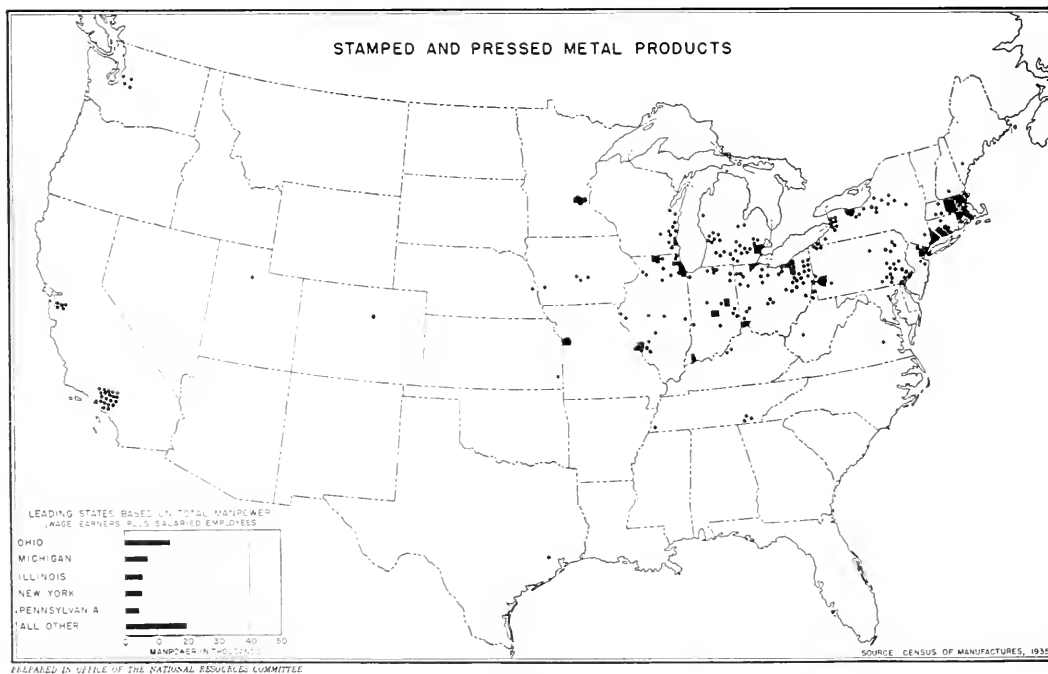


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MAP 24

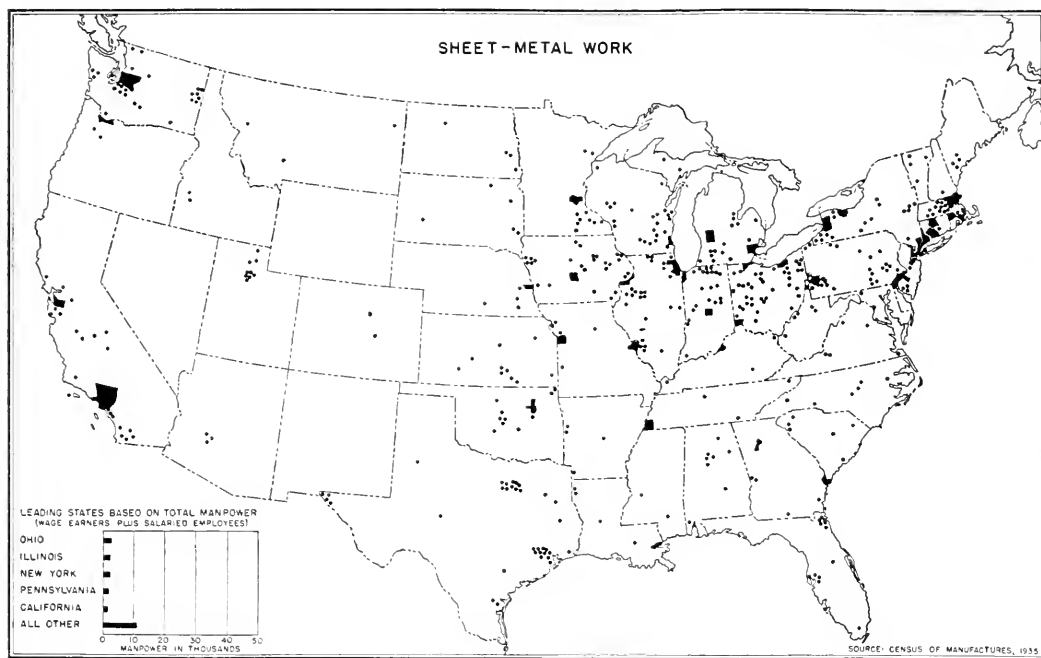


MAP 25



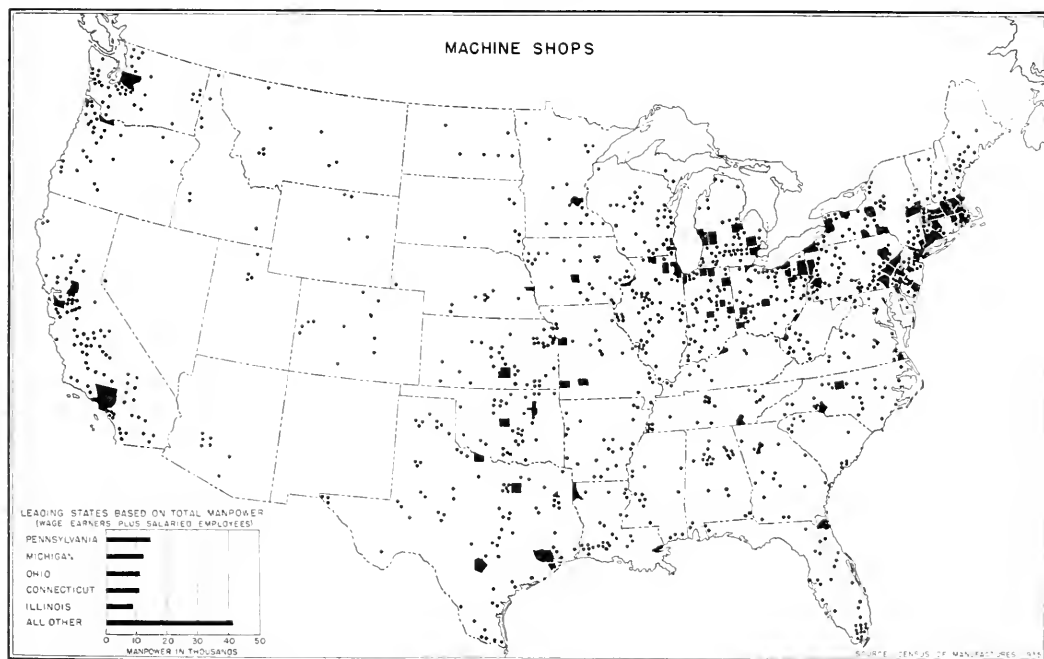
MAP 26





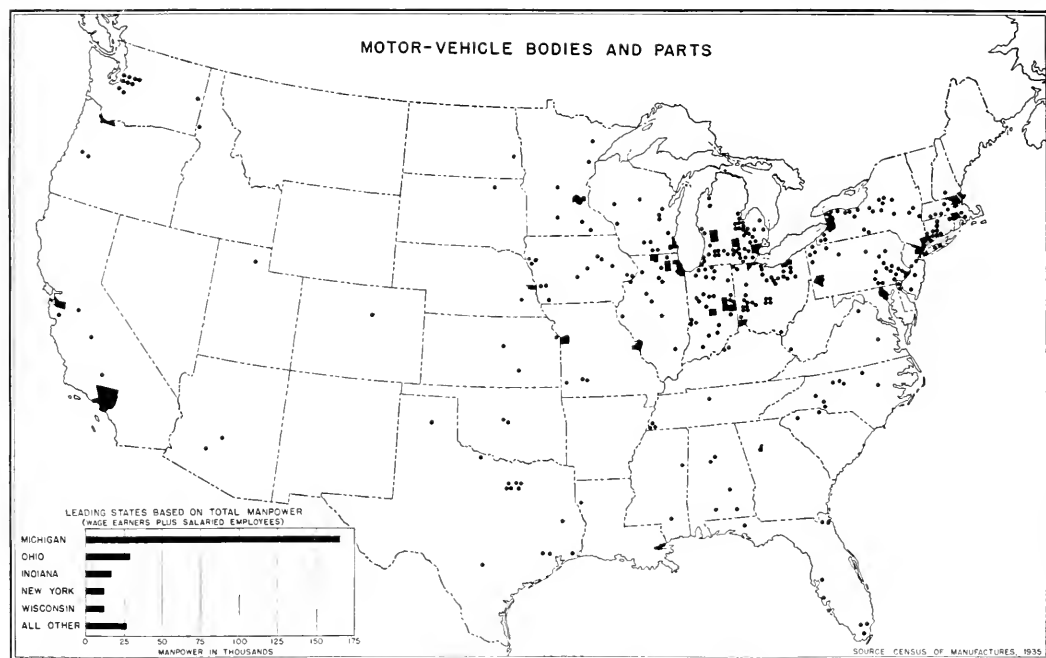
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MAP 27



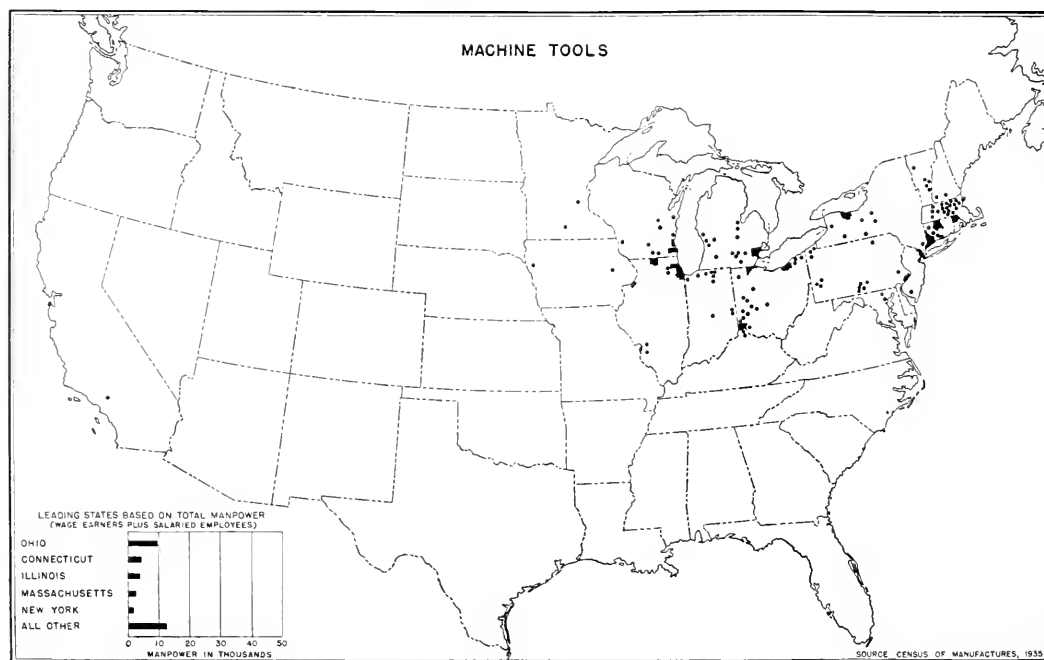
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MAP 28



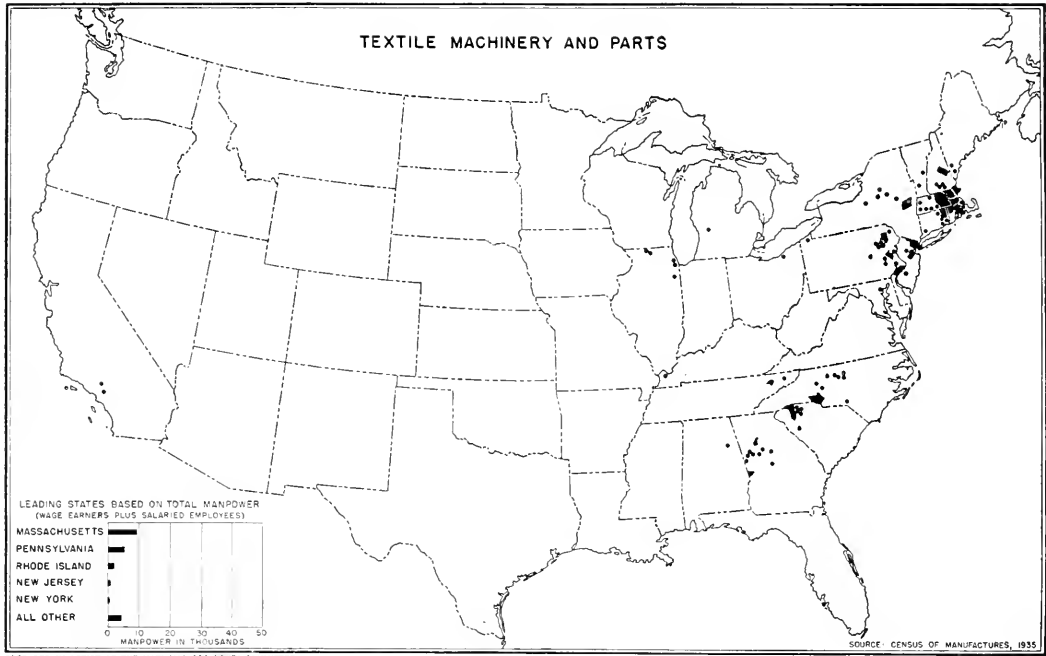
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MAP 29



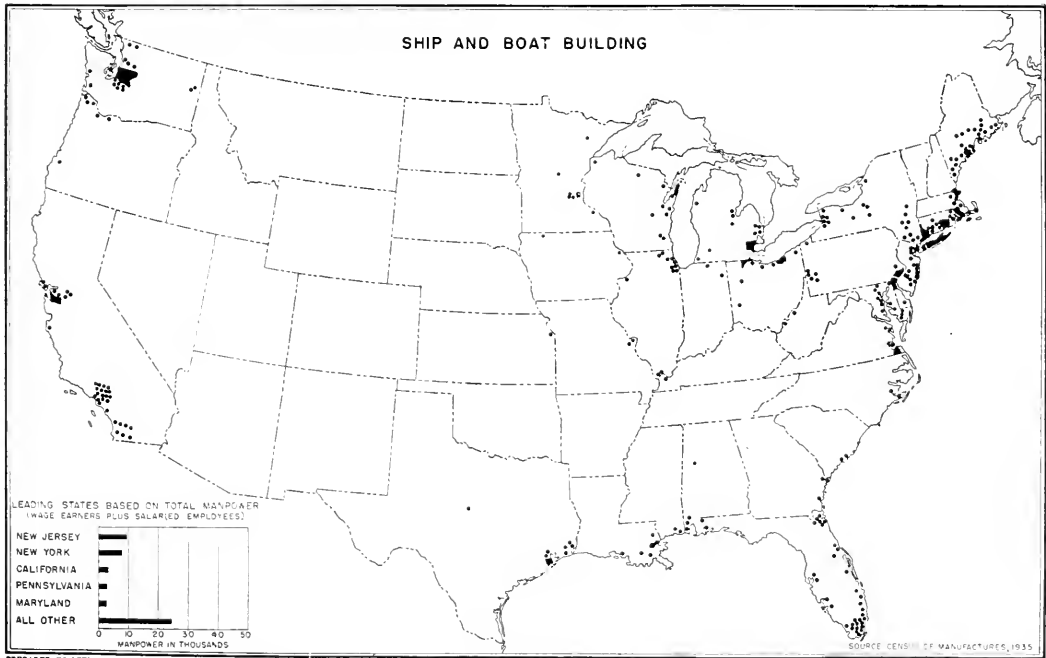
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MAP 30



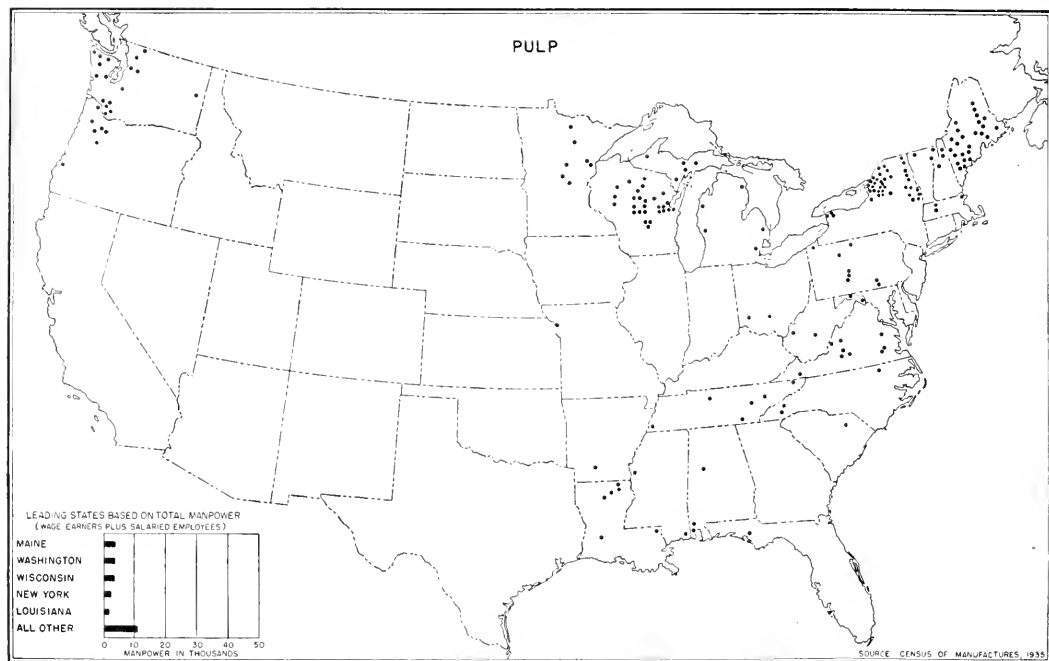
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MAP 31



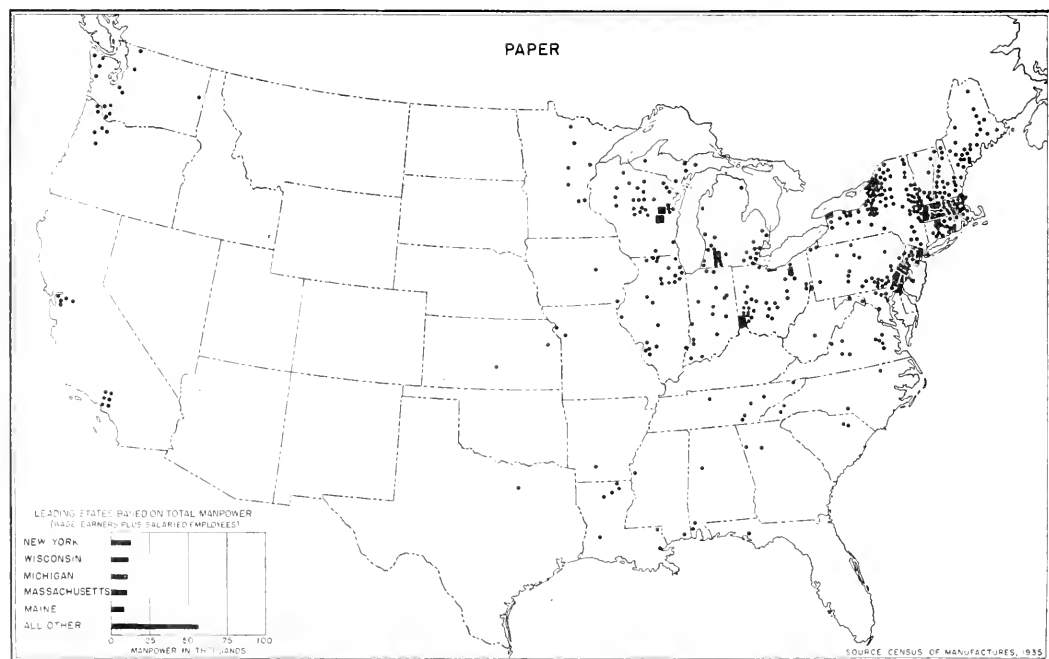
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MAP 32



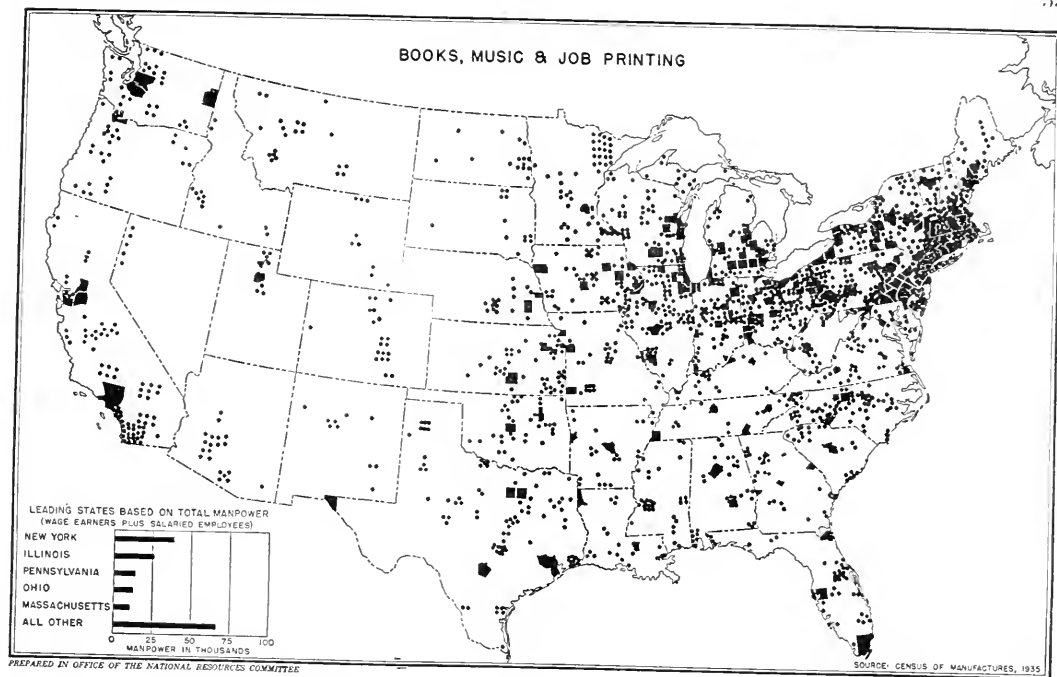
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MAP 33

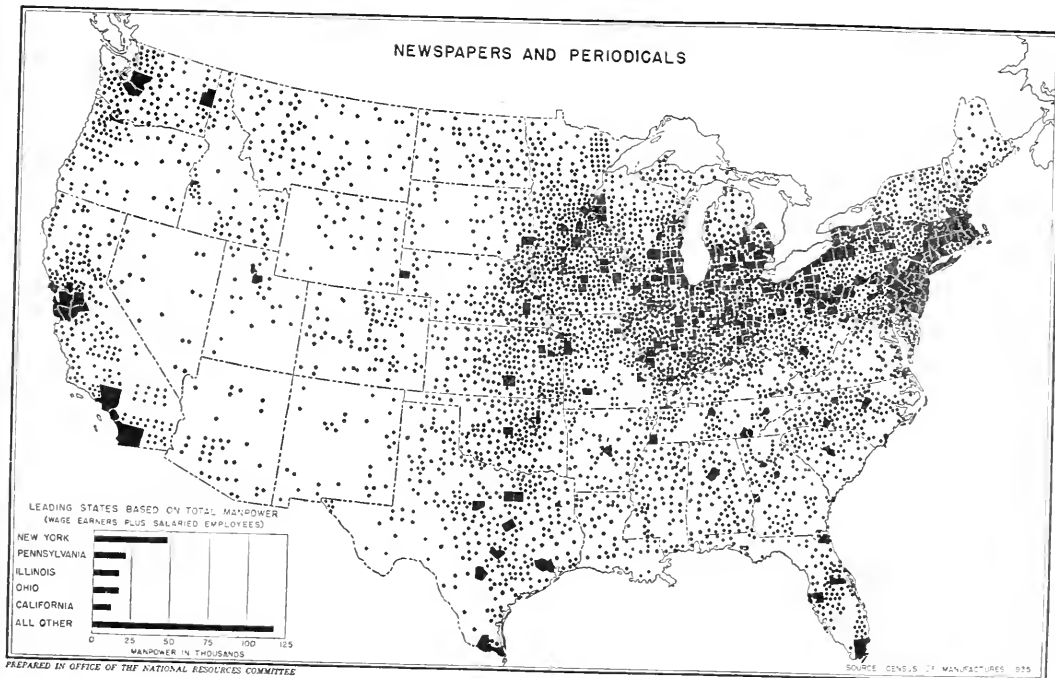


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MAP 34



MAP 35



MAP 36

The location of water power in New England, of population in commercial centers on the coast, of coal and iron resources in the Pittsburgh and Great Lakes area, and, more recently, of available manpower and electricity in the southern region, have contributed to the development of these manufacturing areas. Commercial cities located at strategic points along routes of transportation have constituted nuclei for the development of industries serving the consumer and, to a certain extent, of more footloose industries directly tied neither to resources nor to markets.

Development of these industrial areas has been a cumulative process. Within these areas are to be found industries, such as the furniture industry in Michigan, whose original location was largely determined by the resource used for raw material but which has remained in its old location though Michigan forests no longer constitute its main supply of wood. Skilled workers, a marketing system in the locality, heavy investment in plant and equipment, the presence of subsidiary industries, all contribute to hold such an industry in its historical abode though its source of raw materials may shift. The automobile industry owes its extreme localization in the Detroit area largely to the fact that it is the successor to an industry, carriage making, whose location, like that of furniture, rested on proximity to the Michigan forest resources. Other industries, such as the rubber industry in Akron, Ohio, or the glove industry in Gloversville, N. Y., are more clearly the result of the sheer accident that the inventor or promoter happened to be located at the place in question.

The distinctive characteristics of individual industrial areas and their relative rates of growth depend in part on the kinds of industries which are located there.<sup>8</sup> When particular areas are considered, their growth, even within the same general region, shows conspicuous differences, e. g., the contrast between the Cincinnati and Akron areas, between Detroit and Buffalo, or between Worcester and Hartford. Areas which have grown rapidly have tended to be those dominated by new industries, while wide diversification has tended to accompany lower rates of growth.

Consumers' goods, especially nonessential goods, have shown more rapid and conspicuous rates of growth than producers' goods and the areas which are primarily consumers' goods areas have grown correspondingly. Areas dominated by producers' goods have shown a slower and more even development. The rate of growth of nondurable consumer goods appears to be related primarily to the growth of population, and to some extent to the transfer of industries from the home. The rate of growth of consumers' durable goods has

been more rapid and less dependent on such a slow and stable factor as population growth. Shifts in consumer demand, particularly for nonessential and durable goods, have contributed markedly to the growth of particular areas, e. g., the Rochester area in which the popularity of photography has contributed to the growth of that industrial area.

Other factors appear to condition both the rate of growth and the possible ultimate size. Whereas the natural advantages of an area may provide an ultimate limit to the size of the area, changes in methods of exploiting natural resources and stages in the exploitation of particular resources make a difference in rate of growth. The market area served by an industrial area may be of major importance in setting a limit to the possible development of industries which must be near consumers, but for industries serving a national market the whole nation constitutes the market area. Differences in cost among areas are unstable as the increasing use of power tends to make differences in cost of power more important relative to differences in other costs, and as changes in methods of production shift the relative importance of other items such as wages and materials. Transportation costs have always been of major importance. It is notable that areas of most rapid industrial growth have been on the periphery of the country, the Atlantic and Pacific coasts, the Great Lakes region and the Gulf.

Distinctive development of different industrial areas, moreover, may reflect the intangible factors of leadership, inventive effort, promotional activity, and management. Areas which are administered from the outside, such as the Johnstown steel district, are poorly adapted to develop the kind of leadership likely to contribute to growth. The extent to which the financial supremacy of New York influences the various industrial areas in the country may contribute importantly to differential developments in those areas. Similarly the presence of a tradition of invention, e. g., in New England and certain of the northeastern areas, provides a more rather than a less favorable field for the development of new industries. Some areas, most conspicuously Los Angeles, owe their development substantially to their promotional activity. There may, moreover, be very considerable differences in management. In the newer areas, young men with drive and imagination tend to be the most conspicuous type. In the older areas, men who have been trained as junior executives in large corporations hold corresponding positions. The type of development to be expected from the one and the other of these types of managers may differ markedly.

It is clear that the major shifts in industrial location have not been away from the areas which developed industrially more than 50 years ago. They have,

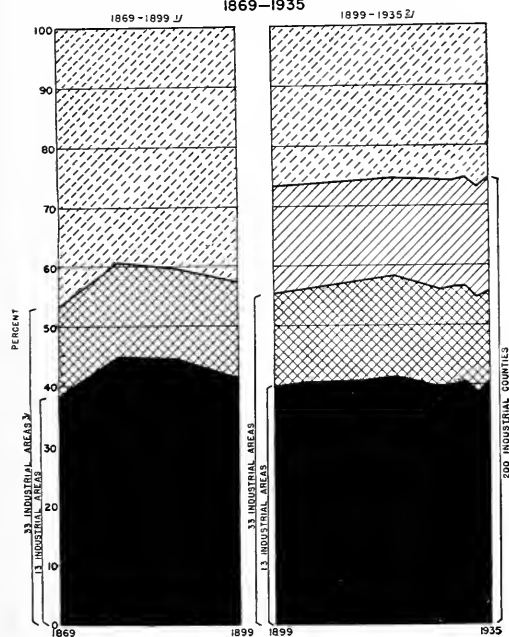
<sup>8</sup> The following analysis is summarized from *Growth of American Manufacturing Areas* by Olenn E. McLaughlin, Philadelphia, 1938.

rather, been in two directions: first, for each of these areas a shift has taken place from the central city to the surrounding region; secondly, there have been shifts in the relative position of one or another of these industrial areas as the rate of growth of older areas or areas characterized by relatively stable or declining industries has become slower while newer areas and newer industries have leaped ahead.

The tendency for industry to leave the central cities and seek the industrial suburbs and adjoining counties is apparent in each of the major areas and in the industrial counties taken together. In each of the 13 large metropolitan areas included in chart I, the proportion of the manufacturing wage earners located in the central city of the area dropped steadily, or almost steadily, from 1870 to 1935. This was true of cities such as Cleveland which in 1870 contained 91.6 percent of the manufacturing wage earners in the Cleveland area but only 81.5 by 1930, and of cities such as Boston which contained only 29.7 percent of the wage earners in its area in 1870 and only 22.7 percent in 1930. For the 13 areas taken together, the proportion of wage earners located

CHART I

PROPORTION OF MANUFACTURING WAGE EARNERS  
IN INDUSTRIAL AREAS AND INDUSTRIAL COUNTIES  
1869-1935



SOURCE: *Is Industry Decentralizing?* Daniel B. Creamer, Philadelphia, 1935; and *Growth of American Manufacturing Areas*, Glenn E. McLaughlin, Philadelphia, 1938, p. 100.

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in the central cities dropped from 69 percent in 1870 to 59 percent in 1935. Within the 200 industrial counties, similarly, 54 percent of manufacturing wage jobs were located in the principal cities in 1899 and 44.6 percent in 1935.

Examination of the trends within the 200 industrial counties from 1899 to 1935 (using the industrial counties as bounded in 1930 as a basis) reveals that counties in certain parts of the area have been losing their proportion of wage earners steadily while others have been increasing their proportion. As one would expect, the counties lying within Massachusetts and Rhode Island and in New York, Pennsylvania, and Delaware declined in relative importance. On the other hand the counties which have consistently shown an increase in the proportion of industrial-county wage earners within their borders fall in three distinct areas, the State of Michigan, the Southern States of West Virginia, North Carolina, Tennessee, and Texas and the State of California. The trend within the area is even more clearly to be seen from the times at which counties within each State contained the largest proportion of industrial-county wage earners that they did at any time. States whose industrial counties were at their highest relative position in 1899 include not only the New England and Middle Atlantic States but those containing industrial counties located along the line of the Ohio-Mississippi River traffic, Louisville, St. Louis, New Orleans, Minneapolis, and St. Paul, and also the mining area around Denver, Colorado.

In contrast to these are the counties in the Middle Western States whose proportionate peak was reached in 1929, namely counties in Ohio, Indiana, Illinois, and Wisconsin. The relative position of the counties in all the Southern States was strongest at the bottom of the depression in 1933. In 1935 Michigan and California occupied the highest relative position which they had at any time.

TABLE II.—Percentage distribution of manufacturing wage jobs within 200 industrial counties, 1899, 1929, 1935

Industrial counties in—	1899 percent	1929 percent	1935 percent
New England.....	20.68	14.77	14.54
Middle Atlantic.....	43.90	37.06	36.40
East North Central.....	22.03	31.17	31.10
Northeast.....	86.61	83.00	82.04
South Atlantic.....	3.40	4.86	6.17
East South Central.....	2.57	2.83	2.91
West South Central.....	.29	.90	.94
South.....	6.26	8.59	10.02
West North Central.....	4.50	3.80	3.43
Mountain.....	.28	.25	.21
Pacific.....	2.35	4.36	4.30
West.....	7.13	5.41	7.94
Total 200 industrial counties.....	100.0	100.0	100.0

SOURCE: *Is Industry Decentralizing?* Daniel B. Creamer, Philadelphia, 1935; and *Growth of American Manufacturing Areas*, Glenn E. McLaughlin, Philadelphia, 1938, p. 100.

Although the older areas have declined in relative importance they remain the main centers of manufacturing. Table 1<sup>1</sup> shows the regional distribution of wage earners within industrial counties in 1899, 1929, and in 1935. New England, the Middle Atlantic, and the East North Central regions combined, i. e., the northeast industrial area, accounted for 86 percent of industrial area jobs in 1899 and still accounted for 82 percent in 1935. Although the proportion of the South increased markedly it still accounted for only 10 percent of industrial area employment in 1935.

The migration of industry has been a contributing factor affecting the relative industrial importance of different regions and localities. For the most part, such "migration" does not involve the physical transfer of machinery and workers, or even, often, of business management from one place to another, but rather the tendency for new plants in an industry to seek the more rather than the less favorable location until the center of the industry's activity has shifted.

The major industries which have shifted their location have been lumber, cotton textiles and industries subsidiary thereto, the shoe industry, hosiery, iron and steel, rubber tires, and, to a lesser extent, furniture and clothing. Although very marked shifts have characterized some of these industries, only lumber and cotton textiles involved a significant decline in the volume of employment in the older centers prior to the drop in all employment after 1929.<sup>2</sup>

The lumber industry's successive jumps from Maine to Michigan to Wisconsin, to the South and to the Pacific Northwest have reflected the search for virgin timber stimulated by the wasteful technology which has characterized the industry. Cut-over areas and stranded populations have been left behind at each stage.

The cotton textile industry moved south primarily in search of cheap labor and cheap power, just as it had originally located in New England when labor and power supplies were most available there. Though the growth of the cotton industry in the South was well under way before the end of the nineteenth century, 50 percent of cotton textile workers were still to be found in the New England area in 1909. By 1935 the proportion had dropped to 22 percent, while the southern area had risen from 35 percent in 1909 to 63 percent in 1935. Dyeing and finishing followed the movement of textile mills somewhat later. In 1909, less than 2 percent of dyeing and finishing was done in the South, although 35 percent of cotton goods were already being made in that area. By 1935, 22 percent of the dyeing and finishing employees were located in the South, while the proportion in New England had dropped from 49 percent to 31 percent.

<sup>1</sup> Data on migration from *Census of Manufactures*.

The hosiery industry is now following textiles into the Piedmont area. Though the center of the industry is still in Pennsylvania, the proportion in North Carolina and Tennessee has increased from 6.4 percent in 1909 to 23 percent in 1935.

In both of these industries the portion of the industry calling for least skill moved first, followed by the finer processes, as the latter became more mechanized and as skill was developed in the new location. Fine textiles have followed coarse from Massachusetts to the Carolinas; full-fashioned hosiery is following seamless hosiery from Philadelphia to North Carolina and Tennessee. To these industries which have been attracted by a cheap and plentiful labor supply, the possibility of further migration to other industrially undeveloped areas constantly presents itself. The textile manufacturers of the Piedmont are now concerned lest their region suffer the fate of New England and they lose their mills to the deeper South. As yet, however, such migration to Alabama and Mississippi has not amounted to significant proportions.

The furniture industry, too, has shown a tendency to grow in the southern area. The proportion of the industry in North Carolina has increased from 4.5 percent in 1909 to 10.4 percent in 1935. In spite of this tendency, however, the factor of skill still keeps the industry centered in its northeastern location and its custom branches remain in centers of population.

Although the industrial shifts that have attracted most attention have been these movements to the South, the movement westward has been more general and at least equally significant. Agricultural activity has, of course, moved westward with the opening up of new lands and the withdrawal of old lands from cultivation in the eastern areas. The cultivation of specific crops, such as cotton, in particular, has moved west to take advantage of rich and fresh soil, reducing older cotton areas to a competitive disadvantage. Industries serving the consumer have followed the population westward. The shoe industry moved from Massachusetts to New York, Illinois, and Missouri to gain the combined advantage of nearness to markets and nearness to raw material. Originally almost wholly localized in Massachusetts, the proportion of the shoe workers in that State had already dropped to 40.3 percent by 1909 and was down to 21.7 percent in 1935. The shift of iron and steel westward from Pennsylvania into Ohio and the Chicago area has reflected a combination of factors, the declining proportion of the industry controlled by the United States Steel Corporation and the relative growth of the companies operating in Ohio and Indiana, and also the shift by the United States Steel Corporation of its operations from its Pittsburgh plants to its newer Lake Michigan



units, favorably situated to utilize the Lake Superior ores.

The concentration of the rubber tire industry in Ohio reflects the absorption of the industry by a few large companies and the geographical consolidation of their operations. In 1909, the manufacture of rubber tires was scattered through New Jersey, Pennsylvania, Connecticut, New York, and Indiana, as well as Ohio which then accounted for only 39 percent of employment. In 1935, 68 percent of rubber tire employees were located in Ohio. The process of concentration is particularly striking in this industry in view of the fact that the raw material is imported and that the location in Ohio has no relation to the sources of raw material. This is a characteristically foot-loose industry, able to locate virtually anywhere. At the present time there are signs that the industry may again become more dispersed as certain of the large rubber concerns have erected plants in the South and in California.

Women's clothing, also a foot-loose industry, has shown the opposite tendency. In 1909, two-thirds of the women's and children's clothing was produced in New York State and 62 percent in New York City itself. In 1935 only half was produced in New York State, and still less in New York City. This movement out of New York has meant a shift of the industry westward with population, the beginning of a challenge by Hollywood to the style supremacy of Broadway, and dispersion out from the metropolitan center to the peripheral regions of New Jersey and Connecticut in search of lower rents and freedom from labor organization.

It is difficult to appraise the net results of these industrial shifts beyond the rough picture of the regional distribution of employment within the industrial counties given in table II and the evidence of stability in chart I. There is no doubt that the Great Lakes, Southern Piedmont, and Pacific areas have grown in proportion to the older regions of New England and the Middle Atlantic States. But the gross pattern of industrial location was already established 50 years

ago. The developments of these years have modified but in no substantial way reshaped this pattern.

In this chapter only the bare outlines of the geographical structure of production have been sketched. Almost no attention has been given to the more detailed characteristics of the geographical structure, to the multitude of factors which combine to determine geographical location in particular cases, to the degree of balance in the use of resources between regions or the influences of transportation and freight rates on geographical location. Each of these would constitute a special study in itself. Instead, the chapter has been almost wholly concerned with indicating in a very rough fashion the extent to which the geographical structure of production is conditioned by the necessity of carrying on some activities close to particular resources and other activities in close proximity to the consumers; the influence of historical factors in determining the location of the activity not directly controlled by the location of resources or consumers; the geographical flow of goods through the successive steps of production; and the relative stability in the location of industry, particularly its continued concentration in the leading industrial counties.

This sketch of the geographical structure of production should serve to make more concrete the manifold activity of the millions of persons who compose the American economy. It indicates the regional specialization and the geographical flow of goods which are involved in the highly organized use of resources. It is partly because of the variety of resources making possible specialization of production, one region providing cotton, another wheat, another cattle, each concentrating on the activity appropriate to its natural resources, that a high level of living could be developed in all parts of the country. In the face of the complexity of organization involved in the interchange of goods between regions, and the failure to deal with the problems it introduces, the actual level of living falls short of the potential. Only as this geographical complexity is kept constantly in mind can the structure of production be envisaged in all its main aspects.

## CHAPTER V.—THE STRUCTURE OF PRODUCTION—FUNCTIONAL

The geographical structure discussed in the preceding chapter gives only one dimension of the structure of production. The functions performed and the interrelationships among them are central to the structure of physical production.

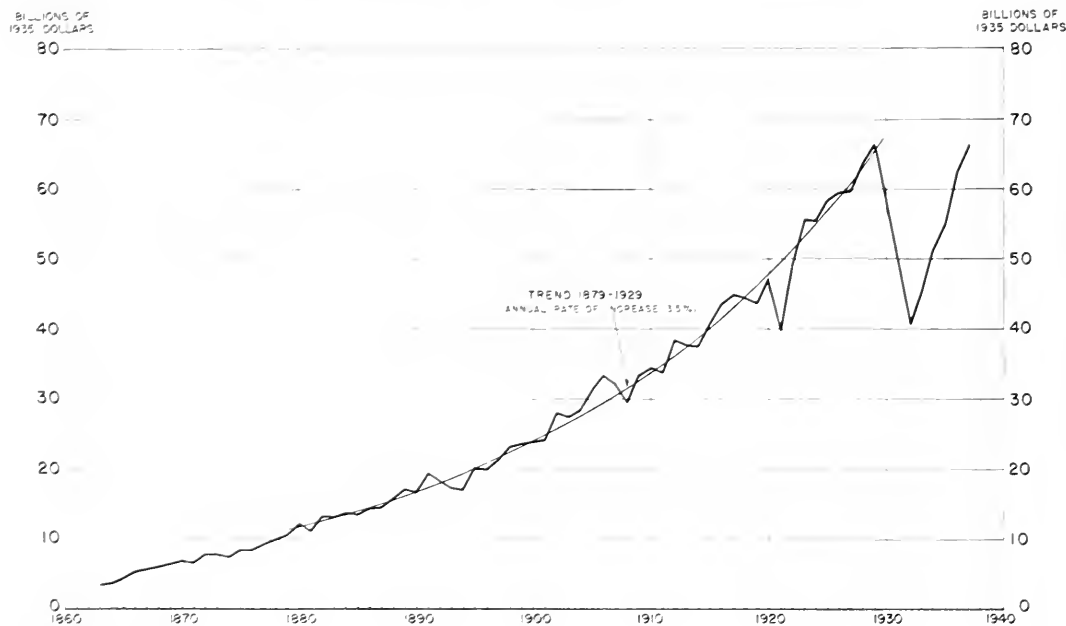
National productive activity in 1935 was carried on by the equivalent of 41 million full-time persons and made use of nearly 365 billion dollars' worth of land, buildings, equipment and inventory and resulted in production with a value of approximately 55 billions of 1935 dollars. Measured in 1935 prices, national production has grown from less than 5 billion dollars annually in the 1860's to 66 billion dollars in 1929. This is shown in chart I, all figures being stated in 1935 dollars. The long-time growth is broken at intervals by depressions of which that in 1921 and that beginning in 1929 are of greatest magnitude. The 1935 figures, falling in

the latter depression, represent very much less than full employment of the available resources, though a considerable increase over the 1932 low. It is the structural characteristics of this production, analyzed in terms of function, with which this chapter is concerned.

In this analysis of the structure of production the main objective will be to set forth (1) the proportionality of different activities, (2) the post-war trends of change, (3) the sensitivity of different types of activity to depression, and (4) an indication of the relation of actual production to potential production. For purposes of analysis, total production will be broken down along two lines; first, according to the major types of activity such as agriculture, manufacturing, and trade and their subdivisions, and secondly according to durability of product. For the first set of categories, the manpower employed and, where possible, the capital employed will be shown. For the varying degrees of

CHART I

### TOTAL PRODUCTION IN THE UNITED STATES 1863-1937



Source: *Appendix A, Table 1*

durability, no statistical basis has yet been laid for showing manpower and capital employed and this analysis will consequently have to be in terms of output.

### Major Types of Productive Activity

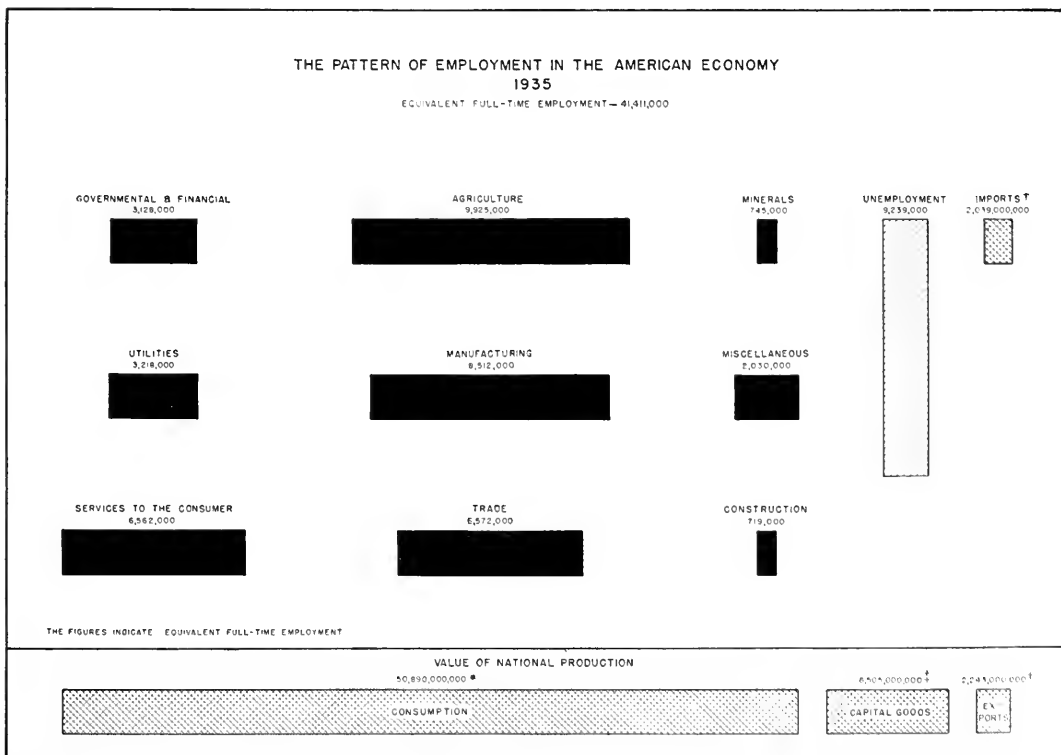
The proportionality of different types of activity is clearly indicated in chart II. This chart shows the total manpower employed in 1935 divided into nine main segments. The black areas on the chart represent the amount of manpower employed in each segment, stated in terms of equivalent full-time employment, part-time employment being reduced to the equivalent full-time.<sup>2</sup> The chart is not aimed to distinguish between Government activity and corporate or private activity but rather to indicate the magnitude of different functions of production regardless of who carries them on. For this reason Government

<sup>2</sup> The exact meaning of "full-time" used in these estimates varies somewhat, but as nearly as the statistical data allow it is the total number of man-hours worked in an industry divided by the number of hours which would be worked by a person working full-time for a year at the hours prevailing in the particular industry.

and finance are grouped together, both being to a considerable extent concerned with the facilitating of production, while the Postal Service has been grouped among the utilities with other forms of communication, and public education has been grouped with private education as a service to the consumer. Undoubtedly, some further regrouping of government data would be desirable, such as combining road building with other transportation service and municipal power plants with other utilities, but data are not available to make a complete allocation of governmental activities to the functions performed, and such allocations would not alter the general picture significantly.

The material in chart II is so arranged as to place at the top the activities which are, on the whole, furthest from the ultimate consumer and at the bottom those closest to ultimate consumption. At the right of the chart is a vertical bar reflecting the magnitude of unemployment in 1935. A study of this chart corrects the impression, so frequently held, that the bulk of

CHART II



Source: Employment from *Patterns of Resource Use*, National Resources Committee, table I.

† Department of Commerce, Bureau of Foreign Commerce, values in dollars.

\* Simon Kuznets, *Community Flow and Capital Formation*, table vii-2; includes producers' durable, business and public construction and repairs and services, the last being derived from *Census of Manufactures, 1935*; values in dollars.

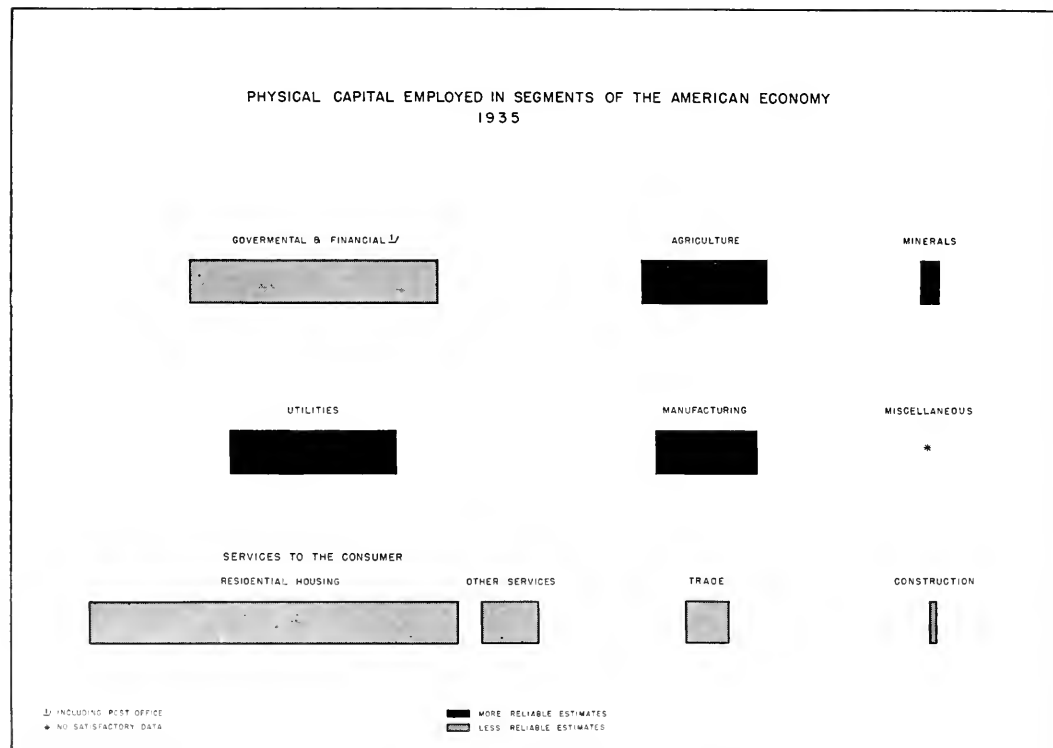
\* Consumer Expenditures in the United States, National Resources Committee, preliminary; figures in dollars.

economic activity is manufacturing. This segment employed a little over 20 percent of the total manpower which was employed in 1935. More manpower was engaged in agriculture than in manufacturing, and nearly as much in wholesale and retail trade, and also in such services to the consumer as education, professional, personal, and domestic services, recreation, and amusement. The small amount of employment in construction reflects very much lower than average activity in that field in the particular year. On the whole, this picture of manpower employed in the different segments of the economy is the best single guide to the role of each segment in the national economy.

A further guide is provided by the volume of physical capital employed in each segment. A very crude estimate of the value of the land, buildings, equipment, and inventories employed in each segment is given in chart III. Estimates are hard to make in this field, partly because of inadequate data but more especially because of the subjective character of the whole process

of valuation. For agriculture, the estimates are those of the census of 1935, while for utilities and manufacturing estimates have been made from income tax returns based on the book values reported by corporations. Estimates for the other segments are only crude approximations. The classification of industries is identical with that in the preceding chart, and the blocks of manpower and physical capital are roughly comparable except for Government, services to the consumer, and construction. In the case of the first, an important proportion of the physical capital is made up of the public domain and the public highways. These bear little relation to the manpower currently active in the production of government-rendered services. In the case of services to the consumer, residential housing accounts for the bulk of the capital values in this segment and renders services to the consumer with relatively little manpower currently employed, while the manpower engaged in serving the consumer in professional, personal and domestic services, education, and recrea-

CHART III



Source: Appendix 18, section 5.

Bars are presented in proportion to the money value equivalent of physical capital.

tion uses relatively little associated physical capital. The estimate of physical capital in the construction industry is very unreliable.

Table I shows the value of the physical capital per equivalent full-time worker for the six segments where the basic figures are sufficiently accurate for the ratio to have significance. The table should be regarded as only suggestive partly because of the crudity of the estimates of physical capital and partly because the proportion of the physical capital which was actually in operation in 1935 is not known. It does indicate the larger physical investment per worker in the transportation, communication, and power fields, the relatively small investment in lands, buildings, and equipment per worker in trade and consumer services, and the relatively similar investment per worker in agriculture and manufacturing.

A third guide in giving the picture of productive activity is the contribution to production made by

each segment of the economy. Chart IV gives for each segment an estimate of the income produced by that segment. The proportionality is approximately the same as that of manpower in the different industries except that the value of the agricultural contribution was smaller and the contribution of government and of the utilities was greater than the corresponding manpower ratio.

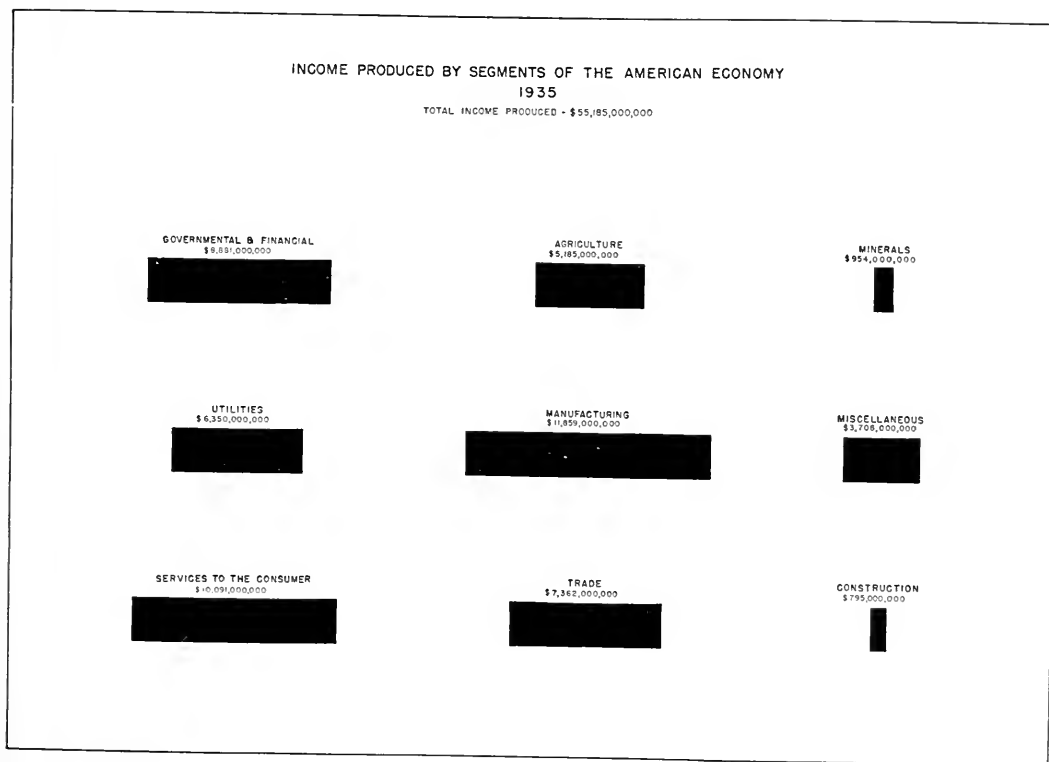
TABLE I.—Value of Land, Buildings, Equipment and Inventories per Equivalent Full-Time Worker, 1935

Public Utilities.....	\$11,900
Mining.....	8,700
Agriculture.....	3,900
Manufacturing.....	3,700
Services to the consumer <sup>1</sup> .....	3,700
Trade.....	2,000
Crude average for whole economy.....	4,600

Source: See appendix 18, section 5.

<sup>1</sup> Exclusive of residential housing and education.

CHART IV



Source: Appendix 18, section 7.

The three charts above give a very clear picture of the proportionality of the different types of economic activity as they were carried on in 1935. The real structural characteristics of production, however, are only to be found by examining economic activity through time. A first crude picture of the changing relative importance of different segments can be obtained from Charts V and VI which are derived from the *Census of Occupations*. The first shows for each census year the absolute number of persons reporting themselves as gainfully employed in each of the main types of activity while the second indicates the proportion of the total in each segment.

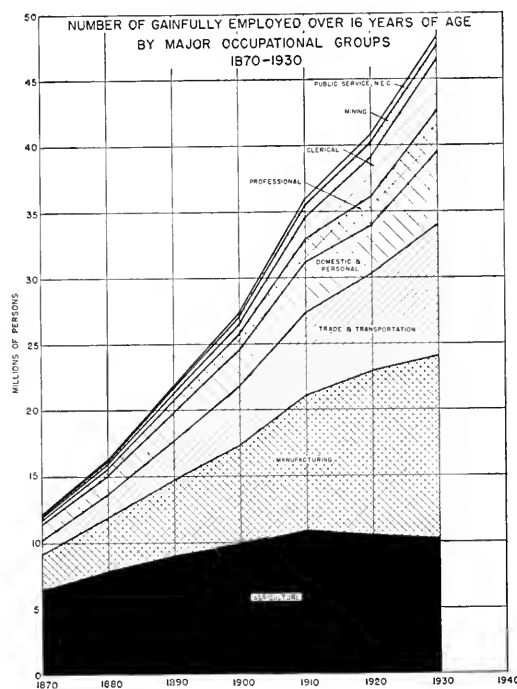
The most striking indication of the charts is the relative decline of the role of agriculture in the national economy. While the number of persons gainfully employed in agriculture increased gradually from 1870 to 1910, in the 60 years from 1870 to 1930 agriculture dropped from 53 percent of the total gainfully occupied

to little more than 21 percent. The great increases have come in trade and transportation and manufacturing and clerical so that their proportion of the total has increased from 32 percent in 1870 to 57 percent in 1930. Thus from 1870 to the present time the national economy has shifted from an economy which had been dominantly agricultural and in which more than half the workers were agricultural to one which is predominantly industrial. This has shifted the whole character of the productive structure away from that associated with agricultural production and toward that associated with industry.

Estimates of employment and the trends of activity since the World War are shown in terms of employment for each segment in chart VII. The trends are adjusted for depression activity and represent the trends of change in the manpower employed in each segment which could have been expected if reasonably full economic activity had been maintained. The two extractive segments, agriculture and mining, show a gradually declining trend of employment even after adjustment for depression, while manufacturing and the utilities show only a slightly rising trend in the post-war period. The areas of expanding employment have been in the rendering of direct services to consumers, in the field of trade, and in the fields of government and finance. No trend can be drawn for employment in construction for reasons which will become apparent in the discussion of production in relation to durability. Leaving construction out of account, it is apparent that the recent trends of employment have shifted the relative emphasis in productive activity away from the extractive and manufacturing industries and have increased the proportion of the available manpower engaged in rendering services either to the consumer or to the whole economy.

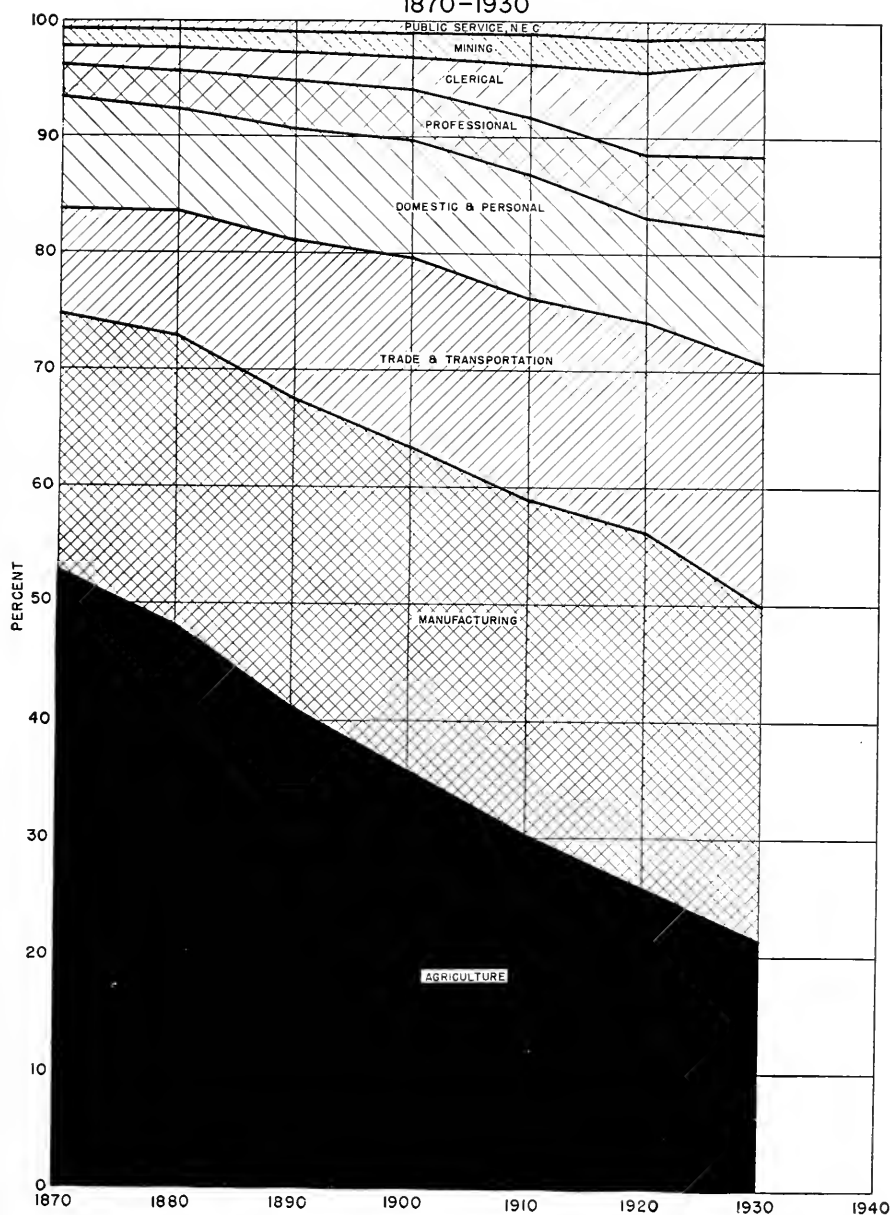
To the structure of production indicated here through time, another dimension must be added, the pattern of sensitivity to changes in consumer income and in the level of productive activity. In Table II below, the segments are arranged in order of the increasing sensitivity of their production to depression as revealed by the sensitivity of their employment. Agriculture and government, the least sensitive, are at the top; construction and mining, the most sensitive, are at the bottom. A rough measure of sensitivity can be obtained by comparing the level to which employment had fallen in 1932 with the level of employment called for in that year by the post-war trend. In Table II the ratio of actual employment to the level called for by the post-war trend is given for each segment. Here the essential stability of agriculture and government and the great instability of construction, manufacturing, and mining are clear.

CHART V



Source: Report of the President's Research Committee on Social Trends, *Recent Social Trends in the United States, 1933*, table 6, page 281. Figures differ slightly from those in Census reports; adjustments have been made to obtain comparable figures.

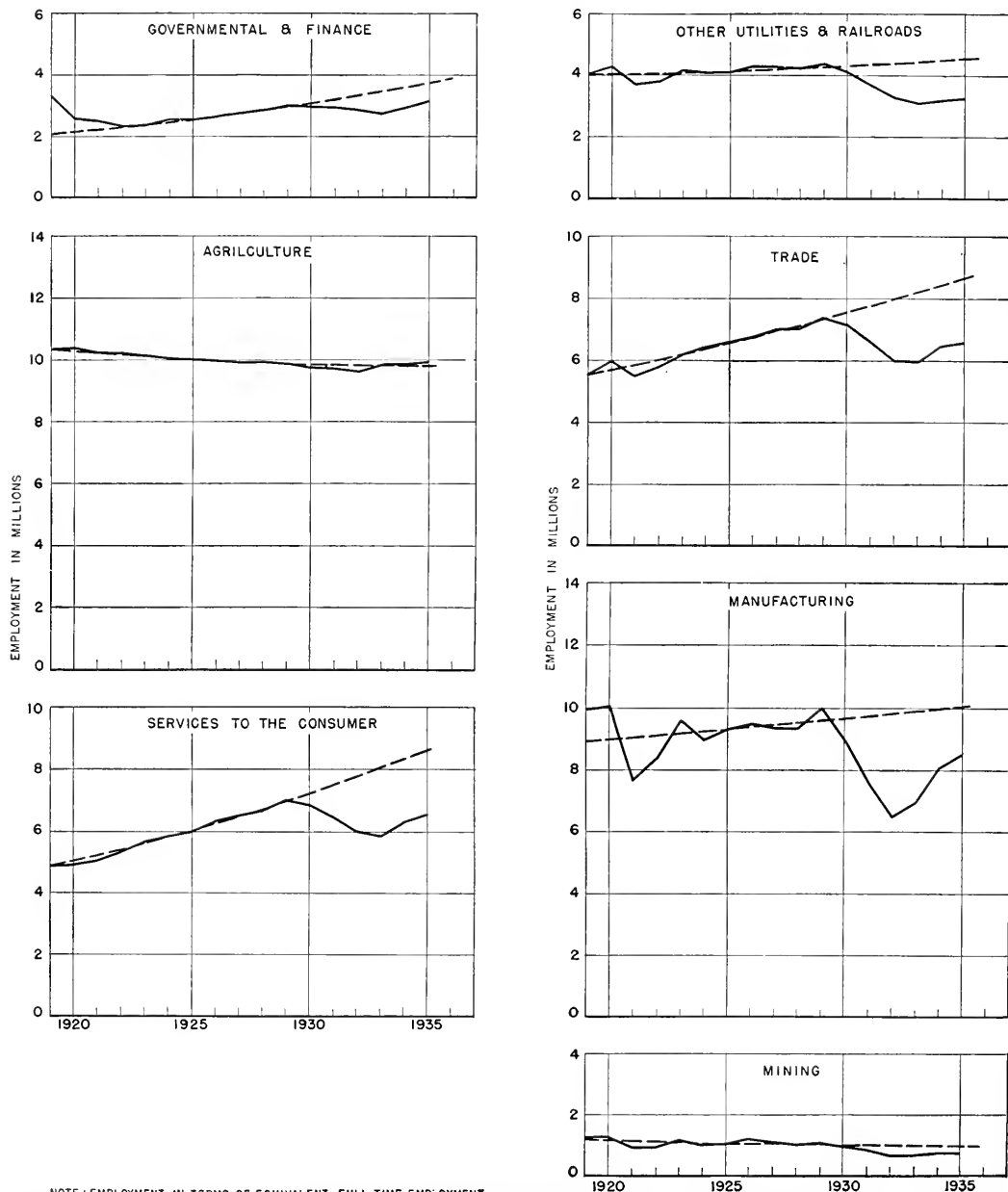
CHART VI  
PROPORTION OF GAINFULLY EMPLOYED OVER 16 YEARS OF AGE  
BY MAJOR OCCUPATIONAL GROUPS  
1870-1930



Source: Report of the President's Research Committee on Social Trends, *Recent Social Trends in the United States, 1933*, table 6, page 281.  
Figures differ slightly from those in Census reports; adjustments have been made to obtain comparable figures.

CHART VII

# TREND OF EMPLOYMENT FOR SEGMENTS OF THE AMERICAN ECONOMY 1919 - 1935



NOTE: EMPLOYMENT IN TERMS OF EQUIVALENT FULL-TIME EMPLOYMENT

Source: *Patterns of Resource Use*, National Resources Committee. The trend for each segment is computed from the data for the years 1923-29, by using a curve representing a compound interest rate of growth.



TABLE II.—Sensitivity to depression of employment in segments of the American Economy

Segment	Proportion of employment indicated by trend line which is represented by actual employment in 1932 <sup>1</sup>	Segment	Proportion of employment indicated by trend line which is represented by actual employment in 1932 <sup>1</sup>
	Percent		Percent
Agriculture.....	97.8	Trade.....	75.2
Federal, State, and local government and banking and finance.....	84.4	Manufacturing.....	65.5
Services to consumer.....	77.2	Mining.....	59.5
Utilities including railroads.....	73.9	Construction.....	59.1
		Total economy.....	73.2

Source: Based on *Pullerna of Resource Use*, National Resources Committee. The trend for each segment is computed from the data for the years 1922-1929 by using a curve representing a compound interest rate of growth.

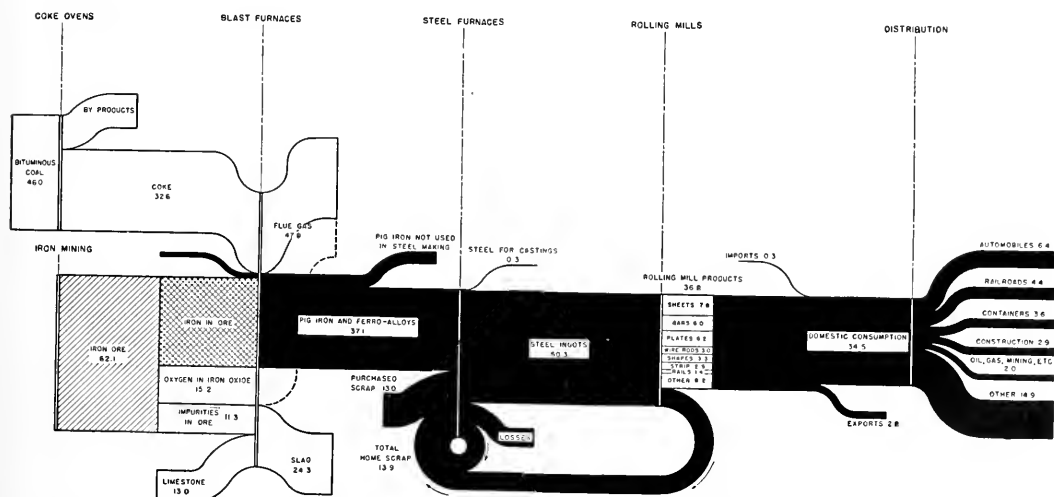
<sup>1</sup> Ratio of actual to trend values.

More light on the structure of production can be obtained by breaking down each major segment into greater detail and by tracing through the flow of goods from resources to the consumer. The flow of physical goods toward the consumer and of money from the consumer back to those who contribute to production is typified by the two examples shown in charts VIII and IX. In chart VIII the physical flow of ore, coal,

limestone, entering the iron and steel industry is traced through and the proportionate disposal is shown at each stage of processing and in the final disposal to the fabricating industries. In chart IX the consumer food dollar is traced back to show what proportion went to each of the productive processes involved. Of this dollar, 25 cents went to the retailer, 9 cents to the wholesaler, 20 cents to the processor, and 41 cents to the farmer. The remaining 5 cents paid for transportation at each of the various steps. The proportions shown in these charts for physical volume and for dollar expenditure are not necessarily representative of other physical products or of dollars of expenditure for other types of goods. They serve merely as examples of proportionality in one specific type of flow and one specific category of expenditure.

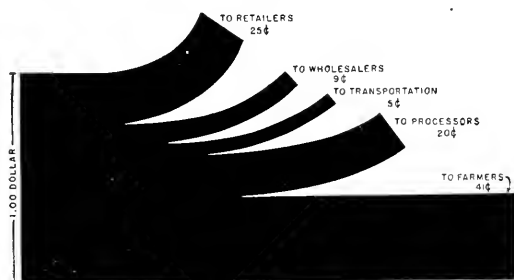
For the whole economy, the proportionate activity at the several stages in the flow from resources to consumers is shown in some detail in chart X. Here the various stages of extracting, processing, fabrication, and distribution are shown in the successive rows of the chart. The manpower employed in raising basic agricultural products and in mining is shown in the top row, that in processing these basic products, and further steps in manufacturing in the next two rows, wholesale distribution in the next and finally retail trade and

CHART VIII  
PHYSICAL FLOW FROM RAW MATERIALS TO FINISHED PRODUCTS  
IN THE IRON AND STEEL INDUSTRY 1937  
(ALL FIGURES IN MILLIONS OF GROSS TONS)



Source: Unpublished study by Dr. Gardiner C. Means for the National Resources Committee, *Capital Equipment Requirements of the Iron and Steel Industry*.

CHART IX

DISTRIBUTION OF CONSUMER FOOD DOLLAR  
1935

Source: Appendix 18, section 8.

service to the consumer at the bottom. The preceding chapter has already shown that these successive steps follow roughly a geographical pattern from the location of natural resources to the location of consumers. From this chart it is possible to trace through the various steps, seeing the proportionate volume of manpower used at each stage. Thus, it is possible to compare the man-power engaged in raising cattle and hogs with that engaged in meat packing, in tanning leather, and in the manufacture of shoes and other leather products. Forest products move in two different directions, some into paper and pulp thence to other paper products and into books and newspapers, others into lumber mills and thence to furniture and into the construction industry. Minerals too may be traced through, coal and iron ore into iron and steel and thence to iron and steel products and to their final fabrication largely in automobiles and various types of machinery. The bulk of these products then travel through the channels of trade to the ultimate consumers. At the left of the chart the services to the economy are indicated, public services of the Federal, State, and local governments, banking and finance, the transportation and communication services, and electric power. The proportionate distribution of manpower employed in the various services to the consumer is shown at the bottom.

Of course, the functional structure of the economy does not follow so neat a pattern of successive levels of activity as this chart would indicate. The basic resources do indeed have to pass through successive stages but some travel much more directly to the consumer in a relatively unprocessed state such as fresh fruit and vegetables, fluid milk, and household coal, while others such as cotton fibers and iron ore have to pass through a series of processes. For some items, particularly machinery, there is a back flow as fabricated products are used in stages of production closer to the natural resources. On the other hand, those things

TABLE III.—Trends of employment for 81 segments, stated in terms of 1929 employment<sup>1</sup>

Code No. <sup>2</sup>	Industry	Percent annual increase <sup>3</sup>	Absolute annual increase
116	Rayon yarn.....	14.8	5,800
7	Electric power.....	8.4	22,800
1	Federal Government, excluding Post Office.....	6.9	10,000
607	Miscellaneous service.....	6.6	20,400
302	Business service.....	6.1	15,900
104	Canning and preserving.....	5.3	6,000
3	Banking and finance.....	4.2	50,000
606	Recreation and amusement.....	4.1	10,100
117	Automobiles.....	4.0	17,700
120	Dyeing and finishing.....	3.8	3,000
603	Professional service.....	3.8	48,000
604	Personal service.....	3.7	60,000
602	Private education.....	3.6	7,300
129.1	Paints and varnishes.....	3.4	1,000
500	Construction.....	3.0	4,600
108	Bread and other bakery products.....	2.9	5,800
601	Public education.....	2.8	32,000
401	Retail trade.....	2.7	147,000
5	Telephone.....	2.6	11,100
2	State and local governments.....	2.4	30,000
120.1	Other textiles.....	2.3	4,200
10	Auto transportation.....	2.2	16,200
131	Petroleum refining.....	2.2	1,800
144	Electrical machinery.....	2.2	6,100
124	Furniture and related products.....	2.1	4,100
605	Domestic service.....	2.1	48,000
137	Iron and steel.....	2.0	8,200
126.2	Printing and publishing (allied industries).....	1.9	1,500
300	Miscellaneous industries.....	1.7	44,000
127	Rubber tires and tubes.....	1.7	1,400
128	Rubber products (other than tires and tubes).....	1.7	1,100
134.1	Pottery.....	1.7	600
132	Marble, granite, and other glass products.....	1.7	1,100
6	Telegraph.....	1.6	1,800
123	Converted paper products.....	1.6	1,700
125	Miscellaneous lumber products.....	1.6	2,200
118	Knit goods.....	1.6	300
133	Cement.....	1.5	500
8	Manufactured gas.....	1.4	900
158	Nonferrous metals (other than copper).....	1.4	600
138.1	Copper, smelting, and refining.....	1.4	200
139	Iron and steel products.....	1.4	6,500
801	Nonvogue corners, manufacturing and mining.....	1.4	22,000
121	Paper and pulp.....	1.3	1,600
301	Wholesale trade.....	1.3	21,000
4	Post office.....	1.2	5,600
126	Printing and publishing (newspapers and periodicals).....	1.2	1,500
156.1	Printing and publishing (book, music and job).....	1.2	1,500
106	Other foods.....	1.0	1,800
140	Nonferrous metal products.....	1.0	2,700
145	Machinery (excluding electrical).....	1.0	7,900
900	Agriculture.....	.9	90,000
112	Leather products, other than leather and boots and shoes.....	.8	400
119	Wearing apparel.....	.7	5,700
134	Clay products, other than pottery.....	.7	700
146	Miscellaneous manufacturing industries.....	.5	1,500
201	Crude petroleum.....	.5	400
205	Iron ore.....	.5	600
206	Rayon and silk.....	.4	500
115	Books and shoes.....	.4	600
111	Mining (nonmetallic).....	.2	200
204	Butter, cheese, condensed milk, and ice cream.....	.2	100
101	Sugar refining.....	.2	100
106.1	Cotton textiles.....	.2	1,000
114	Glass.....	.2	800
152	Fertilizer.....	.2	100
155	Chemicals.....	.2	1,200
129	Anthracite.....	.2	800
203	Meat packing.....	.1	1,300
110	Confectionery and chocolate.....	.1	800
156	Coke.....	.1	800
202	Bituminous coal.....	.1	6,600
11	Other transportation.....	.1	9,100
115	Woolen and worsted.....	.1	2,200
122	Lumber and millwork.....	.1	7,800
107	Leather (tanning and finishing).....	.1	800
9	Rail transportation.....	.1	38,000
105	Tobacco.....	.1	3,600
103	Flour milling.....	.1	1,000
143	Transportation equipment other than automobiles.....	.1	12,500

Segments which are italicized are considered to be less reliable; i. e., the index of correlation is less than 0.50.

<sup>1</sup> The employment data are taken from the report, *Patterns of Resource Use*, National Resources Committee, and the industries defined as in that report. The long-time trend is derived from a linear logarithmic regression obtained by relating employment to consumer income and time, using the data from 1919 to 1935. The 1929 employment is calculated from the regression by substituting the value of 64.7 billions of 1936 dollars for consumer income, this being the value of the long-time trend in consumer income when projected to 1929; the 1930 employment is obtained by substituting the value of 66.8 billions of 1936 dollars of consumer income. Agricultural employment was calculated from a linear regression relating employment to consumer income and time, using the data from 1929 to 1936. Federal Government in 1930 was calculated from a trend based on employment data for the years 1933 to 1936.

<sup>2</sup> Code number used in *Patterns of Resource Use*, National Resources Committee.

<sup>3</sup> This is the difference in the long-time trend values of employment in 1930 and 1929 to the actual employment in 1929.

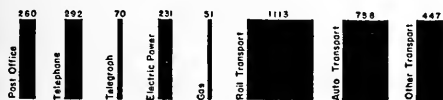
SERVICES TO THE  
ECONOMY  
6347

790  
Federal Government  
Except Post Office

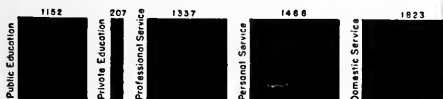
Dairy Products

1241  
State & Local Govt  
Ex Public Education

1097  
Banking & Finance



SERVICES TO THE CONSUMER  
6563





# THE AMERICAN ECONOMY

1935  
EQUIVALENT FULL TIME EMPLOYMENT - 41,411,000



FIGURES FOR EACH SEGMENT GIVE MAN-YEARS OF WORK IN THOUSANDS

11

12

which reach the consumer in the form of services usually originate closer to their final point of consumption. In spite of the actual complexity of the production flows, this chart covering the total manpower used in 1935 does give a rough picture not only of the segments of production in which this manpower was engaged but also the flow relationship from resource to the consumer.

For each of the separate activities presented in chart X it is possible to derive trends similar to those already given for the major segments. In Table III the annual change in manpower engaged in each of 81 lines of activity is given and is stated as a percent of actual employment in 1929. As in the case of the major segments, the figures represent the annual change in employment which could be expected if there were no depression. The industries with growing employment are shown first, then those having little change in manpower engaged and finally those with declining employment.

In order to bring out the significance of these trends, a second figure is given for each line of activity, the number of additional workers that, it is estimated, would have been called for each year, figured on the basis of the workers actually employed in 1929.

Actual employment for each industry in any year reflects a combination of long-time trend and sensitivity to depression. An examination of the relative sensitivity of industries with rapid, slow, or declining rates of growth, however, does not show any noticeable con-

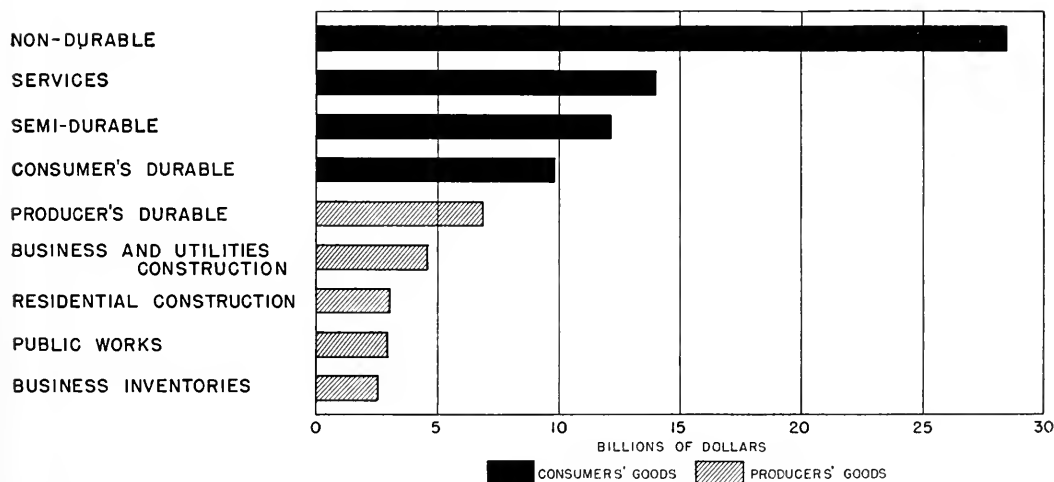
nection between long-time trend and sensitivity. Differences in sensitivity, on the other hand, are closely related to differences in the durability of goods produced. The discussion of sensitivity will, therefore, be postponed at this point and combined with the discussion of durability which follows.

### Durability of Products

One of the most important characteristics of the structure of production is directly related to the durability of products. The significance of durability was apparent in the analysis of consumer wants, for it there became clear that durable consumer goods were more sensitive to variations in consumer income and consumer expenditure than were nondurable goods. This greater sensitivity of consumers' demand for durable goods finds a direct reflection in variation in the production of such goods and is paralleled by a similar behavior in the production of durable goods for producers.

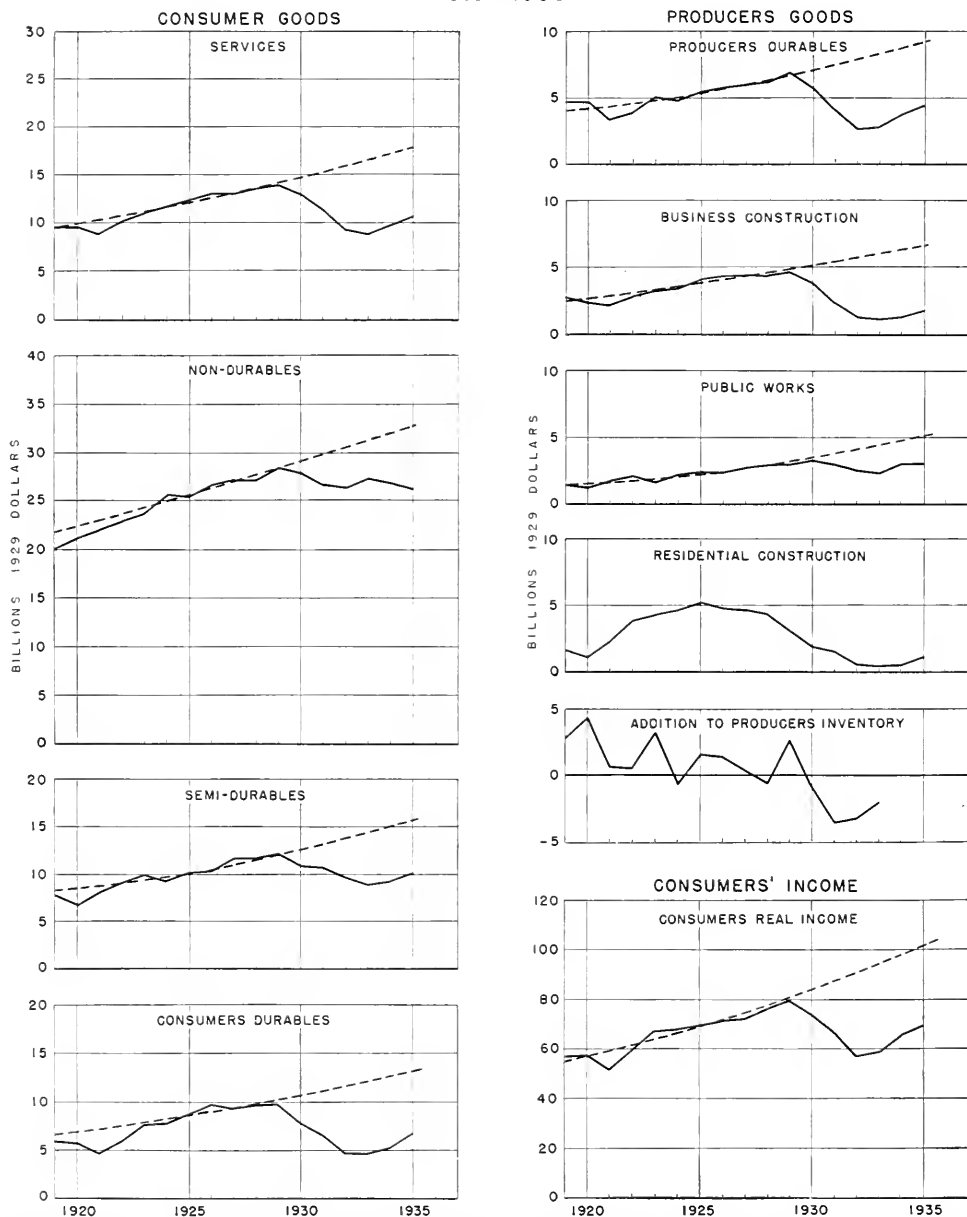
In chart XI the value of all production in 1929 is divided according to the durability of the product. Approximately three-quarters of the total was production of consumers goods while the remaining quarter was composed of producers goods. Residential construction is included with the latter both because such a large proportion of residences are rented by the occupant and are properly classed as being investments by the owners and because as a matter of social accounting it is convenient to impute rents to owner-occupied

CHART XI  
PRODUCTION OF PRODUCERS' AND CONSUMERS' GOODS  
1929



Source: Based on data given in appendix 18, section 4

CHART XII  
TRENDS IN PRODUCTION OF GOODS BY SPECIFIED GROUPS  
1919 - 1935



Source. Based on data given in appendix 18, section 4. The trends indicated in the various segments are derived for the years of the period 1923-29, by the use of a compound interest curve. It is assumed that this period reflected conditions of nearly full use of resources.



houses and to treat all purchases of new homes by consumers as investments.<sup>3</sup>

Of the total production in 1929 approximately one-third was made up of durable goods, less than one-fifth of semidurable goods and additions to producers inventory and the remainder or nearly half of the total was made up of consumers nondurable goods and services.

The post-war production in each of these categories of durability is represented in chart XII, and the trend of change indicated except in the case of residential construction and producers inventory for which there is no clear basis for drawing a trend line. As in the charts of the major segments and of individual industries, the trend line shown is the post-war trend after adjustment for the influences of depression. It is notable that in the case of consumer services and nondurable and semidurable consumer goods the trend of increase is low, amounting for the group to approximately 3.8 percent a year, whereas for each of the durable goods categories except residential housing it is appreciably higher, amounting for the group to approximately 5.4 percent. This differential rate of growth is more clearly seen in chart XIII which shows the proportion of total production exclusive of residential construction and additions to inventory in each category from 1919 to 1935. The relatively greater increase in durable goods production from 1919 to 1929 is clear while its greater sensitivity to depression is evident in the data after 1929.

The trend toward greater production of durable goods involves a significant change in the structure of production during the post-war period. There are no comparable data to indicate whether the same type of change was going on before the war, but there is a presumption that the post-war trend is the continuation of a pre-war trend since agriculture which declined so greatly in relative importance was concerned primarily with the production of nondurable and semidurable goods. To some extent both trends reflect the increased industrialization of the country and the shift of its exports from agricultural to industrial products.

The significance of this shift toward durable goods is apparent when the sensitivity to depression of durable goods is compared with that of nondurable goods. In table IV the relation between the actual production in 1932 and the production called for by the post-war trend is indicated. The much greater sensitivity of durable goods and construction than of nondurable and semidurable goods is immediately apparent. Differences in the drop in price for each category are

<sup>3</sup> Automobiles and other consumer durable and semidurable goods could logically be treated in the same way but their durability is usually less than that of residences and they are treated to a very much less extent so that no great distortion is introduced by treating such goods as "consumed" when purchased rather than as an investment which renders a series of consumer services through their useful life.

also shown for this table in order to call attention to the possibility that sensitivity in production may reflect insensitivity of price as well as durability of product.<sup>4</sup>

TABLE IV.—Sensitivity to depression of commodity classes and services

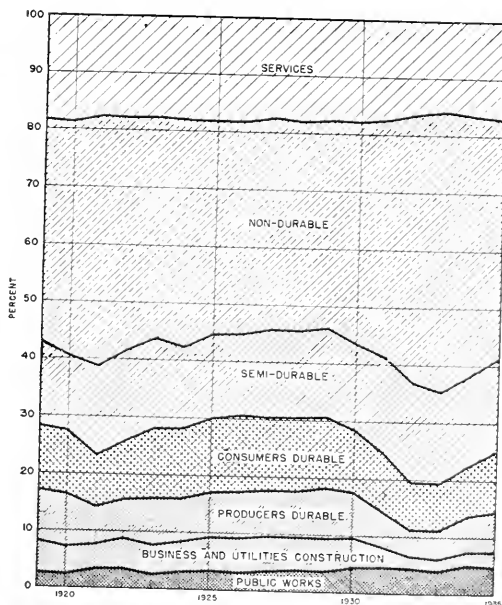
Commodity class	Proportion of production indicated by trend line which is represented by actual production in 1932 <sup>1</sup> (percent)	Proportion of 1929 price represented by 1932 price <sup>2</sup> (percent)
Nondurable goods	92.7	65.7
Semidurable goods	87.3	64.0
Construction of public works	83.4	80.1
Services	77.5	97.9
Consumers durable goods	60.6	84.6
Producers durable goods	56.1	82.5
Business construction	50.5	82.2

<sup>1</sup> Values upon which the ratios are based are in terms of 1929 prices as given by Simon Kuznets, *Commodity Flow and Capital Formation*, vol. I, p. 483; services is a specially constructed series, shown in Appendix 18, sec. 4. The trend line is based on an exponential regression relating the value to consumer income and time; the trend given by the regression is put through 1926 at a level corresponding to the average value for the years of the period 1923-29 from which the 1932 trend value is derived.

<sup>2</sup> Price ratio obtained from Kuznets, *Commodity Flow and Capital Formation*, vol. I, table II-7, and footnote D of table VI-5. The price ratio for services is from a specially constructed index shown in appendix 18, sec. 4.

<sup>4</sup> For further discussion of the relation between price behavior, durability, and sensitivity to depression, see chap. VIII.

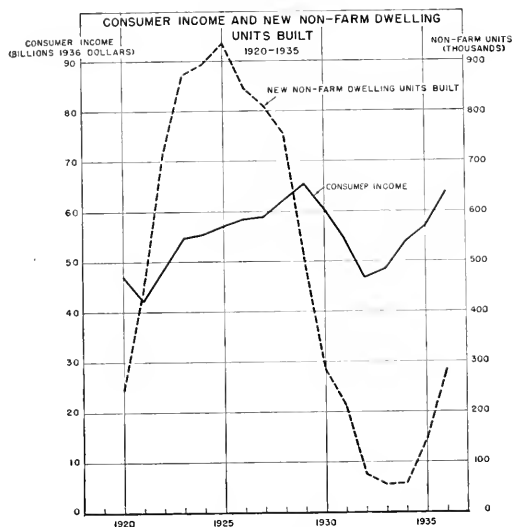
CHART XIII  
PROPORTION OF GOODS AND SERVICES  
BY DEGREE OF DURABILITY,



Source: Based upon data given in appendix 18, section 4

1919 1935

CHART XIV



Source: Based upon data given in Appendix 18, section 9.

Because of the major structural importance of these different categories it seems desirable to examine their behavior in more detail. Examination of chart XII shows that the four categories of consumers goods, producers durable goods, business construction, and public works follow a somewhat similar course, moving down together with depression and moving up with recovery though their trends of change and sensitivity to depression are different. This pattern of behavior appears to be closely related to the variations in consumers real income also shown on the chart. For each of the categories, the post-war peak of production was reached in 1929 along with the peak of consumer income, the depression low was reached in 1932 along with the low in consumer income, or in 1933, the year after the low in income, and each series has recovered considerably above the depression low. This close relation is shown statistically in the table below which gives the proportion of the variation in each of these durability categories which is paralleled by variations in consumers income adjusted for a time factor to account for differences in trend.

In contrast to the other categories of goods, residential construction appears to vary more independently of the variations in consumer income. Such construction reached its peak in 1925 and continued to decline from then until 1933, its low point corresponding roughly to consumer income at its low but in other respects having little relation to the latter. This partial independence

of the two series is clearly brought out in chart XIV, which shows both the number of nonfarm dwelling units constructed each year and the size of total consumer income.

TABLE V.—Percent of variation, 1919 to 1935, which is paralleled by variation in consumers' income and a time factor

Services .....	92.7
Nondurable .....	83.9
Semidurable .....	73.9
Consumers durable .....	93.8
Producers durable .....	93.0
Business construction .....	91.0
Public works .....	82.9

Source: Based on data given in appendix 18, section 4. Percent of variation is the square of the index of correlation (adjusted) which is derived from a linear regression (in logarithms) relating production in each category to consumer income and time, using the data for the years of the period 1919-35. The consumer income series is that employed in the report, *Patterns of Resource Use*, National Resources Committee. For the data, see Appendix 18, sec. 9, of this report.

A second category bearing only a very crude relation to consumer income is the net addition to producers' inventories. This fluctuates violently and to a considerable extent independently of consumer income though in the depression it is a negative figure and reaches its largest negative value in the year of lowest consumer income. It thus bears some relation to consumer income but not the close relation shown for the first group of items.

In appraising the relation between the different categories of production and consumer income it should be kept in mind that production is both an expression of the producers' reaction to the way consumers dispose of their income and the main source of consumers' income. The lag in durable-goods production suggests that expansion of the production of durable goods other than residential housing follows from the expansion in consumer income and consumer expenditures. This is a possibility which can be accepted as a reliable conclusion only after further research. At the present time it appears as very probable but not conclusively established.

The structure of production insofar as sensitivity to depression is concerned can be made more specific by examining the changes in employment in specific lines of activity. In table VI segments of the economy covering approximately 30 percent of the total employment are arranged in order of their sensitivity to variation in consumers' income. The activities are grouped into five degrees of durability, combining all durable goods in one category and all construction in another category. Inventory does not appear as a separate category since it is not an independent branch of production. The table serves to reaffirm the structural importance of durability. How much this sensitivity of durable goods production is a matter of durability, how much it is a matter of the price inflexibility indi-

TABLE VI.—Sensitivity of employment to depression in specified segments of the economy

Index of sensitivity to depression <sup>1</sup> (percent range)	Services	Nondurable	Semidurable	Durable	Construction
0-10	Federal Government except Post Office. Post Office. State and local government. Telephone. Electric power and light. Banking and finance. Automobile transport. Telegraph.	Flour milling. Cane sugar. Petroleum refining. Butter and cheese. Bread and baking. Meat packing. Newspapers, printing and publishing.	Rayon yarn. <sup>2</sup>		
10-20	Transportation other than railroads.	Tobacco. Printing and publishing, except book and music. Chemicals. Paper products. Bituminous coal. Anthracite coal. Manufactured gas. Canning and preserving. Confectionery. Paper and pulp.	Boots and shoes. Knit goods. Dyeing and finishing. Silk and rayon. Wearing apparel. Glass.	Copper smelting.	Construction. <sup>2</sup>
20-30	Railroads.		Rubber tires. Leather. Leather products other than shoes. Printing and publishing, book and music. Other textiles. Cotton textiles. Paint and varnish. Woolen and worsted. Rubber products, excluding tires and tubes.	Nonferrous metals other than copper.	Cement. <sup>2</sup>
30-40		Fertilizer. Coke.		Pottery. Nonmetallic mining. <sup>2</sup>	
40-50				Furniture. Automobiles. Iron and steel. Iron and steel products. Transportation equipment other than automobiles. Other machinery. Electrical machinery.	Lumber and millwork. Clay products. Iron ore.
50-60					Marble, granite, etc.

Source: Based on the data for employment calculated at various levels of consumer income as given in table II of *Patterns of Resource Use*, National Resources Committee. The classification of the segment according to durability is based on table I of appendix 8 of this report.

<sup>1</sup> Sensitivity to depression is defined in this case as the percent increase in employment corresponding to a change in consumer income from 65 to 78 billions of 1936 dollars a 20 percent increase interpolated from table II of *Patterns of Resource Use*, National Resources Committee.

<sup>2</sup> Estimates are less reliable.

cated in table VI, and how much price inflexibility is itself a matter of durability, are questions whose discussion will be postponed to chapter VIII below.

### Technology

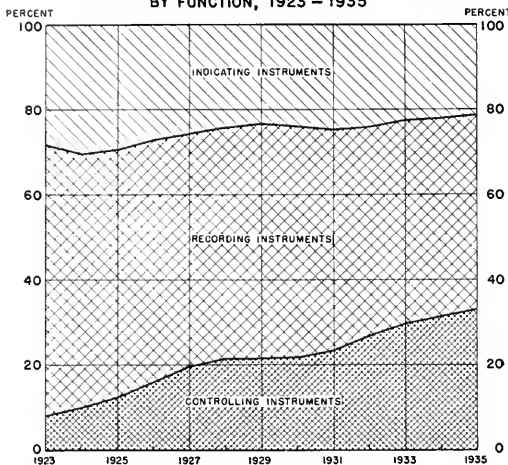
Contributing to the greater emphasis on durable goods is the continuing development of improved technology. Partly this takes the form of new commodities, such as the automobile and the talking movie, which satisfy wants not previously satisfied or not satisfied so effectively. Partly the improving technology takes the form of techniques or machines which conserve resources, labor-saving devices such as the continuous strip rolling mills, fuel-saving devices such as the improved steam generating power plants, or raw material saving as in the case of the new high-strength steels. Constant improvements in technique make for changes in the structure of production.

The two most important effects of technical change on the structure of production have been the increasing mechanization of production, largely through the introduction of automatic machines, and the improved organization of production in specific areas. In the home, the office, the farm, and the factory, automatic

machines are performing services which contribute to a higher standard of living, increase production or release manpower and make it available for some other use. The increased use of automatic machines in industry is graphically indicated in chart XV which shows the proportion of total sales of instruments to industry which are used to control production processes. Such instruments make up nearly one-third of all instrument sales in 1935 whereas in 1920 they constituted less than one-twelfth of such sales.

Coupled with increasing mechanization has been the development of scientific management and improved techniques of organization. In the absence of any change in mechanical instruments, division of labor and synchronization of activity may lead to greatly increased productivity. In some of the most highly mechanized industries it is organization quite as much as mechanization upon which productivity rests. The automobile assembly line is relatively simple mechanically. Organizationally, it must function without a hitch. The large-scale, highly integrated organization of the railway system contributes its major technology. The telephone system is in essence a highly complex, smoothly functioning organization of individuals and materials.

CHART XV

DISTRIBUTION OF INDUSTRIAL INSTRUMENT SALES  
BY FUNCTION, 1923 - 1935

Source: Works Progress Administration, national research project, *Industrial Instruments and Changing Technology*, figure 10, page 40.

Techniques of organization have extended their scope strikingly in recent years. Scientific management has grown from preoccupation with the minute detail of industrial processes—the efficiency of the individual worker's movements—to concern with problems of broader scope—the whole organization of an enterprise, the clarification of duties among departments and branches of the organization and the disentanglement of functions involved in techniques of administration. This development has made possible a greater product per worker often quite as significantly as has increased mechanization.

The saving of manpower in different lines of activity resulting from mechanization and improved management is indicated in chart XVI which shows the decline in the manpower required per unit of production in five major segments of production in the post-war period. The decline in manpower requirement for the same amount of production has been greatest in manufacturing, amounting to approximately 45 percent from 1920 to 1932. Mining, steam railroads, and telephone requirements dropped roughly 20 to 25 percent.

The decline in manpower requirements in agriculture appears to have been more uneven and less marked. Since the estimate of unit labor requirements is largely derived from a comparison of the volume of output with the number of persons employed, the effects of bad seasons in reducing crops and of depression in backing up surplus workers on the farms appear as increases in the amount of labor required per output.

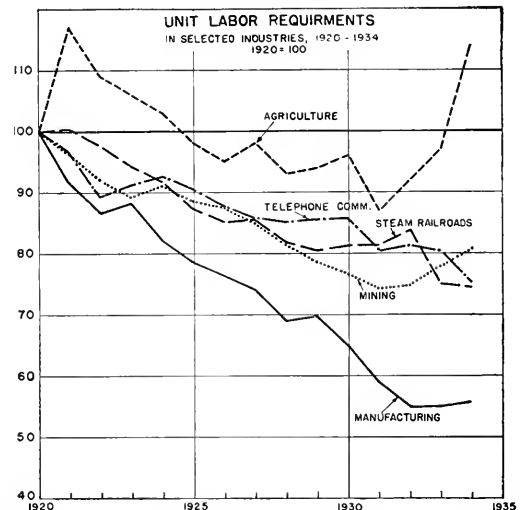
Studies of changing techniques in the production of specific crops show continuous declines in labor requirements rather than the uneven trend shown here.

With the exception of the utilities, the increase in output per worker appears to have been checked during the depression. The effect of technological improvements, however, is obscured by the fact that an apparent slowing down in the rate of increase in output per worker may reflect a decline in new invention, a reduced rate of new construction which would mean that new inventions were put into use less rapidly, or an increase in part-time employment.

If similar data were available for trade and consumer services, they would probably show only a very minor reduction in the manpower per unit of production in these fields.

This release in manpower per unit of output continued fairly steadily from 1920 onward but, whatever hardships it may have placed on individuals, it did not involve an absolute diminution in total employment prior to 1930 since the total manpower employed in 1928 and 1929 was 8 percent and 10 percent greater than in 1920. Nor is there convincing evidence that the great unemployment in the depression of the thirties was a direct result of technical improvement. The increasing mechanization and increased integration of production unquestionably altered somewhat the structure of the whole economy and through that influence may have made the whole economy more subject to depression.

CHART XVI



Source: Based on data from *Technological Trends and National Policy*, National Resources Committee, 1937, table 8, page 77, for all industries except agriculture. For the data on unit labor requirement in agriculture, see appendix 18, section 10.

### Potential Production

The combined effects of long-time trends, technological change affecting the manpower required for a given volume of production and sensitivity to depression may be seen in the following chart, XVII. Here the potentialities of 1938 are set forth in contrast to the actualities of 1935, for the major segments of the whole economy. The totals for each segment here shown represent the 1938 distribution of employment which it is estimated would correspond with the full use of manpower, taking into account trends in consumption habits and technological changes. The assumption of no unemployment is unrealistic in view of the fact that at no time since 1920 have there been fewer than one and one-half million unemployed. The figures for no unemployment are used because of the absence of a basis for estimating the minimum feasible unemployment. The black portion of each segment represents the actual employment in 1935, reduced to the equivalent of full-time employment. The size of the difference indicates the areas where the absolute increase in em-

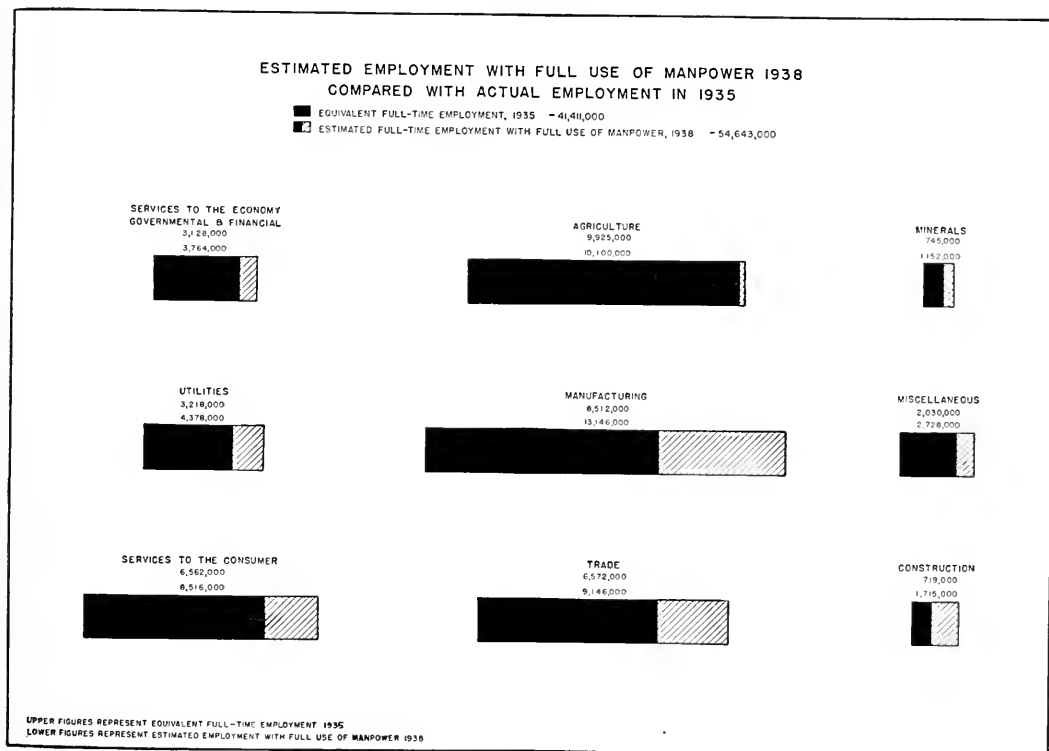
ployment which would accompany the full use of resources is greatest. A comparison between the black and gray portions of each segment shows the percentage increase which would correspond with full employment under these conditions. The data for construction are very inadequate and the estimate of potential employment is less reliable for this than for other segments.

### International Trade

One more major element in the structure of production needs to be considered—international trade. So far only production within the United States has been considered. Actually part of the product of American industry is exported in exchange for commodities and services from abroad. The total volume of exports, including services to foreigners in this country, in 1935 amounted to 2,360 million dollars or approximately 5 percent of the country's total production.<sup>5</sup> The propor-

<sup>5</sup> This percentage is derived as follows: Total production including services in 1929 dollars for 1935 is 62,549 million dollars (as given by S. Kuznets in *Commodity Flow and Capital Formation*); total exports including services in 1935 amounted to 2,360 million dollars or 3,159 millions of 1929 dollars (derived from data of the Bureau of Foreign and Domestic Commerce. The ratio is 5 percent.

CHART XVII



Source: Based upon data in *Patterns of Resource Use*, National Resources Committee, table 1.

tion of the products of three major segments which were exported in 1937 is indicated in table VII.

TABLE VII.—*Proportion of major exports to domestic production, 1937*

[Value in thousands of dollars]			
	Total production	Exports	Proportion exported
			Percent
Agricultural products.....	19,636,000	2,795,034	8.2
Mineral products (crude).....	35,440,000	4,177,609	3.3
Manufactures.....	258,850,000	2,471,365	4.2
Total exports (including services).....		7,443,008	
On the basis of an alternate method of computation, the results are as follows:			
Raw agricultural products.....	19,636,000	2,757,179	7.8
Mineral products (crude).....	35,440,000	4,177,609	3.3
Value added, all manufactures.....	25,070,000	1,107,895	4.4

<sup>1</sup> Bureau of Agricultural Economics, mimeographed release of May 21, 1938. Gross farm income.

<sup>2</sup> Bureau of Foreign and Domestic Commerce, total agricultural exports.

<sup>3</sup> Bureau of Mines, total value of all minerals produced.

<sup>4</sup> Bureau of Foreign and Domestic Commerce, total value of minerals included in exports of crude materials.

<sup>5</sup> Estimated by applying percentage change in a value index to the 1935 census figures.

<sup>6</sup> All manufactures and semimanufactures.

<sup>7</sup> Bureau of Foreign and Domestic Commerce, Finance Division.

<sup>8</sup> Value of crude agricultural exports plus value of exports of crude foodstuffs plus estimated value of raw materials contained in exports of manufactured foodstuffs and semi-manufactured and manufactured agricultural products.

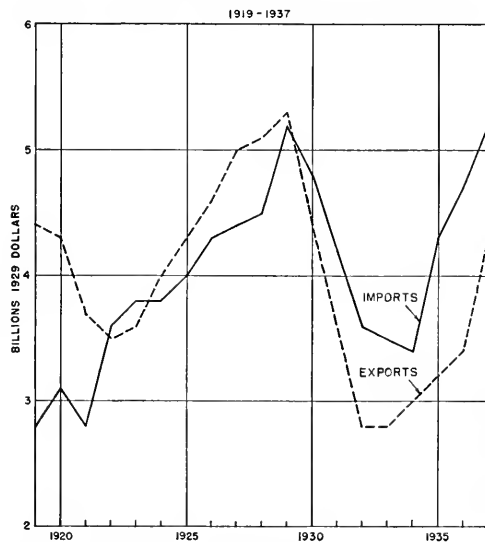
<sup>9</sup> Estimated by applying ratio of value added to value of product (according to 1935 Census figures) to estimated value of product in 1937.

<sup>10</sup> Estimated by applying appropriate ratios to exports of all manufactures.

The total exports (both commodities and tourist expenditures) each year since 1919 are given in chart XVIII in terms of 1929 dollars. Table VII-A shows

CHART XVIII

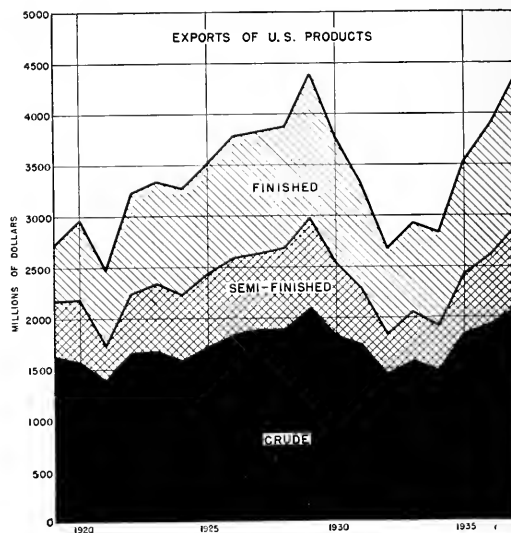
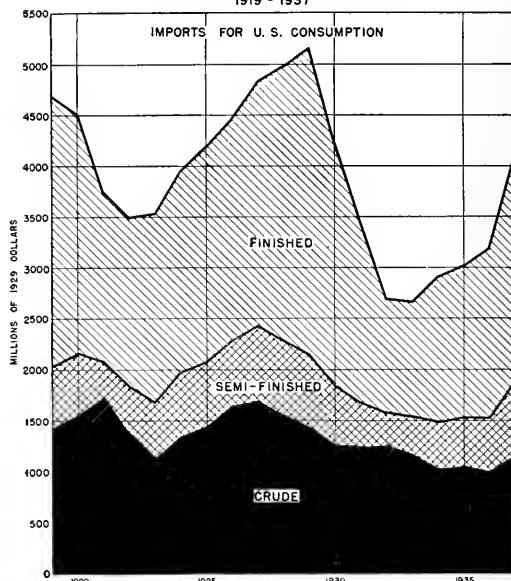
#### U.S. IMPORTS AND EXPORTS OF GOODS AND SERVICES



Source: Bureau of Foreign and Domestic Commerce.

CHART XIX

#### VOLUME OF UNITED STATES EXPORTS AND IMPORTS OF FINISHED AND UNFINISHED GOODS 1919 - 1937



Source: Bureau of Foreign and Domestic Commerce. Chart shows values expressed in 1929 dollars.

the proportion of national production of commodities that has been exported in each census year, without any adjustment for price changes. Total exports show a declining trend both in absolute amounts and as compared with total production. The changing composition of exports is shown in chart XIX. A little more than half the value of total exports is made up of finished manufactures, while raw materials are next in importance. During the depression, more raw materials were exported and correspondingly less finished manufactures; and with recovery, exports of raw materials have fallen sharply in proportion to the total, while exports of finished manufactures, especially machinery and vehicles, have taken their place. Exports of semimanufactured goods have shown a steady, though slight, increasing trend in proportion to the total for the entire period of 1919 to 1937.

TABLE VII-A.—Total production of goods and proportion exported, 1919–37

[Millions of dollars]

Year	Total United States production	Exports of United States merchandise	Percent exports are of total production
1919.....	48,527	7,750	16.0
1921.....	34,163	4,379	12.8
1923.....	45,903	4,091	8.9
1925.....	47,494	4,819	10.1
1927.....	47,810	4,759	9.9
1929.....	52,825	5,157	9.8
1931.....	32,337	2,378	7.3
1933.....	24,915	1,647	6.6
1935.....	32,937	2,243	6.8
1937.....	(1)	3,295	7.5

Source: Bureau of Foreign and Domestic Commerce, *Summary of United States Trade With World, 1937*, p. 39.

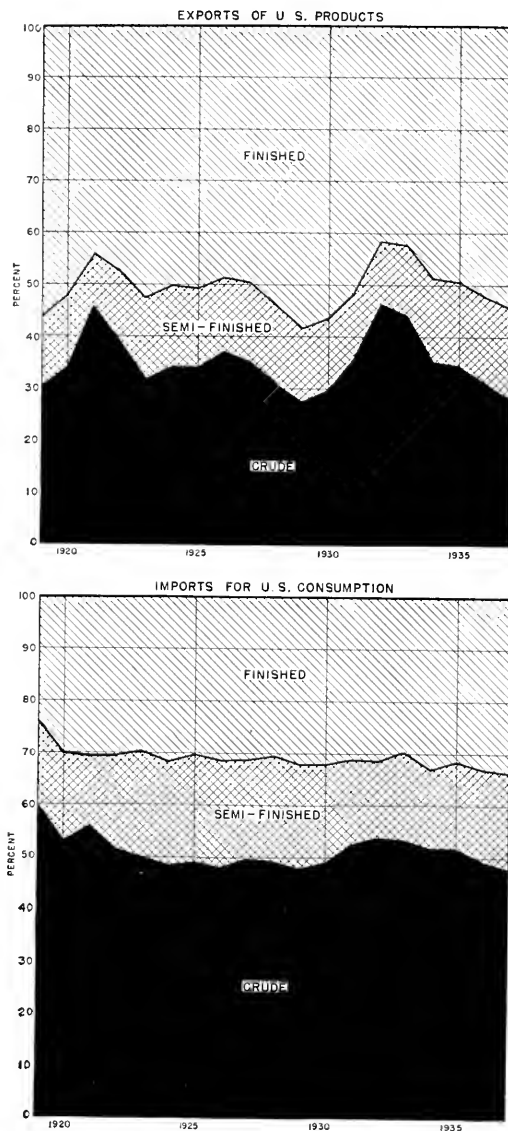
<sup>1</sup> Not yet available.

<sup>2</sup> Based on a rough estimate of value of total production.

The primary function of these exports when considered in terms of the whole economy is as an exchange to obtain goods which cannot be produced in this country or which would cost more to produce in this country than other things which might be exported in exchange for them. As has already been indicated, approximately 40 percent of the country's imports (including imports from Hawaii and Puerto Rico, and expenditures of Americans abroad) in 1929 was made up of tropical products and minerals not available in the United States, while another 15 percent was made up of services rendered to Americans abroad as tourists or on business. The remaining 45 percent of imports was made up of things most of which could have been produced in this country but which can be obtained more cheaply by exchange. Thus the country exchanges American produced cotton for Japanese silk, wheat flour and cotton cloth for Cuban sugar, and raw cotton for French brandy and wines. Total imports are

CHART XX

PROPORTION OF UNITED STATES EXPORTS AND IMPORTS OF FINISHED AND UNFINISHED GOODS 1919–1937



Source: Bureau of Foreign and Domestic Commerce.

shown in chart XIX and XX, divided into the different major categories. The presence of tariffs both in this country and abroad tends to reduce this type of desirable exchange but has at the same time the advantage that it somewhat reduces the impact of foreign conditions on particular industries in this country.

In a general way, exports and imports rise and fall together; both have shown great sensitivity to depression, exports dropping in 1932 to 68 percent of their recent predepression trend and imports dropping to 86 percent of their corresponding trend. The composition of imports in terms of the degree of fabrication shows less marked trends of change than that of exports, the proportion of each major category to the whole being shown in chart XX.

While American imports and exports in recent years have tended to be of approximately the same magnitude and offsetting, there are financial transactions in addition as long- or short-term investments are made or retired between countries or as the profits from investment are realized. Such financial flows and their repercussions on production will be discussed in chapter VI.

The preceding pages represent an effort to indicate the main structural characteristics of production as reflected in the data for the period since the World War. These characteristics are altogether too complex to be summarized in a single paragraph. Yet certain outstanding items can be brought into review. In respect to proportionality the outstanding characteristics which call for note are (1) the greater amount of both manpower and capital employed in agriculture than in manufacturing, yet the very much smaller money value attached to the agricultural contribution to production than to the contribution of manufacturing, a difference which can be partly explained by the low level of agricultural prices; (2) the high proportion of capital invested per worker in the public utility field; and (3) the relatively large contribution to na-

tional production made by governmental and financial activities even when the post office and education are excluded. In respect to the changing character of production through time after adjustment for depression influence there are two most striking characteristics. First, there is the tendency for a decline of employment in the extractive segments, agriculture and mining, the lack of any significant post-war trend toward expanding employment in manufacturing and in utilities as a whole, the contraction of railroad employment counterbalancing expansion in other utility activities and the trend of expanding employment in trade, service to the consumer and in the field of government and finance. Second, there is the slight tendency for production to be shifted from nondurable to durable goods. Thus the economy as a whole is undergoing gradual changes in the relative emphasis likely to be placed on different types of productive functions when resources are fully employed.

In respect to depression behavior, the various economic functions show varying degrees of sensitivity to depression forces, the most stable being agriculture and governmental activity while the most sensitive are mining, manufacturing, especially of durable goods, and construction. The greater sensitivity of production in these latter segments is linked with a smaller depression sensitivity of prices. The implication of this will be considered in chapter VIII. Altogether the structure of national production, expanding over a period of years with the increase in the labor force and with improving techniques of production but frequently falling way below the full use of resources, shows a gradually changing proportioning of activity through the years and quite marked differences in the sensitivity of different types of activity to depression. The reasons for the failure of production to be maintained at a level which will fully employ the available resources will be discussed after the financial overlay to production has been considered.



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## CHAPTER VI.—THE STRUCTURE OF PRODUCTION— FINANCIAL OVERLAY

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In the two preceding chapters on the structure of production, attention has been entirely focused on the concrete physical activity of production, its location, and its characteristics. But the bulk of productive activity, apart from home production for home use, is carried on at least in part through the use of money, and the process of production is punctuated by money transactions.<sup>1</sup> It is the purpose of this chapter to indicate the way in which these transactions in combination involve a continuing flow of money overlying production, to show the magnitude of the major money flows and to discuss certain of the factors affecting them.

### Money Flows Overlying Production

At frequent and irregularly spaced intervals in the production process money changes hands with respect to some phase of that process. It is successively involved in the long drawn-out activity whereby cotton is raised, ginned, transported to the cotton mill, spun into yarn, woven into cloth, transported to the clothing manufacturer, made into overalls, distributed in bulk to wholesalers, broken into smaller lots and distributed to retailers, and finally distributed, one pair at a time, to the ultimate consumers. A series of money transactions prick out the pattern of production as the farmer pays for seed, rents land, hires cotton pickers, sells his cotton; as the ginning of cotton and its transport are paid for; as the goods change hands in the successive steps toward the consumer; as each producer hires workers, pays for materials and power, pays taxes for the services rendered by government, and pays interest and profits to the holders of financial interests in the enterprise.<sup>2</sup>

In this manner a long series of money transactions outline the physical process of production with considerable detail, yet all of the separate steps in production are not reflected in money transactions. Within a single enterprise production goes on without money changing hands at each stop. There is no separate money transaction as the cotton is put through each of the separate machines in the textile mill. Only as goods are transferred between economic units, or as factors of production are supplied by individuals or

enterprises to other individuals or enterprises, does the productive process involve money transactions.

The more highly integrated an industrial process, the fewer the money transactions as the goods move toward the consumer. The Ford Motor Co. can mine ore and coal, make steel, and fabricate it into automobiles without money transactions intervening between these steps. But even in such a highly integrated process of production, money transactions outline the different stages as wages are paid for the different types of activity, taxes are paid on different properties, and materials have to be bought.

Even in the case of government where most services are rendered to business or ultimate consumers without any specific charge for the specific service the process of rendering services is pricked out in money terms as salaries are paid to school teachers, as the labor and material costs of road building are paid, as judges and police are paid, and as the multitude of other productive activities of government are financed.

Thus, for practically the whole of productive activity, except that carried on in the home, there is a pattern of financial flows overlying the physical flows of production. At intervals the financial flows are attached to the physical flows by money transactions. In the following discussion, the structure and magnitudes of these money flows will be sketched as far as possible. At many points, particularly with respect to saving, there are insufficient data available to show magnitudes; at some points there is so much confusion of understanding that even if data were available there would be disagreement as to how they should be interpreted. In spite of its inadequacies, this sketch of the financial overlay to the productive structure is given because of the fundamental importance of financial factors to the functioning of production. The character of the major money flows will be taken up first and then their magnitudes.

### The Major Money Flows

The major financial flows and the main production flows differ both in the direction and in the circularity of flow. Production moves by successive steps towards the consumer while the money flows directly connected with production move in the opposite direction. Production, with rare exceptions, is a straight line flow toward the consumer, ending with the latter. Money flow is in the main a circular flow, the same dollars

<sup>1</sup> Productive activity is also carried on within other consuming units for consumption within the units as is the case to some extent in children's or old people's homes and army camps.

<sup>2</sup> There is some question whether interest, dividend, and tax payments are properly included as involving transactions. They are clearly part of the circuit flow of money and will be included as transactions in this discussion.

being able to repeat the circuit time after time. It is partly because of the circular character of the flow of money that the financial flows are so poorly understood as compared with the more direct flows of production.

There are three basic elements in the circuit flow of money which are of primary importance to the structure of production. These are, first, the flow of money from producers to consumers in the form of consumer income; second, the reverse flow of money from consumers to producers as consumers purchase goods; and third, the flow of money from consumers to producers through the investment of savings. The money flowing to consumers as income is received as a return from work in the form of wages and salaries, as a return from investments in the form of interest, dividends, and rents, or as entrepreneurial withdrawals representing a return from work and investment in combination.

#### Characteristics of Money Flows

The money flowing from consumers to producers through the purchase of commodities and services is usually paid first to the final distributors and is then in part successively passed back to producers at earlier stages of production as each producer purchases commodities or business services from other producers. To some extent consumer savings are used in such a way as to finance consumption by others, in which case the money may pass through other hands before reaching the final distributor through the purchase of goods.

The money flowing from consumers to producers through the investment of savings may go direct to the producer who makes use of the savings or may reach him indirectly through a series of financial institutions which act as middlemen, bringing together funds from investors and distributing them to producers. Whatever the particular route by which money travels back and forth between producers and consumers in each of these flows, together they constitute the basic pattern of the circuit flow of money.

Although this basic set of money flows has been described as though money were first paid out to consumers as income and then money were received back by producers either through the sale of goods or the issuance of securities, there is in fact no necessary beginning or ending to the process. No study of the money actually in circulation can determine whether it originally entered the circuit through the hands of producers or the hands of consumers. It would be just as correct to describe the flow as one in which consumers purchased goods or invested in enterprises and then had their money supply replenished through the receipt of wages, salaries, interest, dividends and other sources. Both processes go on simultaneously and neither precedes the other as a necessary condition of production, however much particular injections of

money into circulation can be said to be made initially through the hands of producers or of consumers.

In addition to the goods purchased, both consumers and producers obtain commodities and services, particularly the latter, from government without making any specific payment for the specific goods obtained. The production of these goods is financed in part out of taxes levied on both consumers and producers and in part out of governmental borrowings. In the circuit flow of money, the money collected as taxes performs much the same role as the money collected by producers through sales, in both cases providing the funds out of which current production can be financed. Likewise the money obtained through governmental borrowing roughly corresponds in the circuit flow of money with the money obtained by producers through the issuance of securities. When government is included as a producer, the three basic flows in the circuit flow of money thus consist of (1) the money flow to consumers in the form of money income, (2) the money flow from consumers to producers in payment for goods plus the taxes paid to government, and (3) the money flow to producers, including government, as savings are made available to them. Besides these basic flows there are secondary money flows such as those involved in the use of installment credit and in the disposal of corporate savings, which are important to the structure of production.

In addition to such money flows, there are various money transactions which have little significance for the structure of production. Thus the sale of securities by one investor to another has little direct significance for production since it does not supply new funds to finance new capital formation. So also the money flow accompanying a transfer of an existing property from one owner to another such as the sale of a farm or home may not be connected with a step in the process of production. Likewise, gifts between consumers only shift purchasing power without contributing to the process of production. All of these can be disregarded in considering the financial overlay to production.

On the whole and over any considerable period of time, the monies paid out to consumers as income are of the same general magnitude as the monies received by producers through the sale of goods, through taxes, or through the sale of securities or the obtaining of loans.<sup>3</sup> However, in any relatively short period it is probable that, even if the total money supply remained constant, serious discrepancies could arise either through the building up of cash holdings by producers at the expense of consumer holdings or of consumer holdings at the expense of producer holdings. Likewise, if there is a significant alteration in the supply of

<sup>3</sup> The monies paid out by producers in retiring outstanding securities are implicitly treated as involving negative sales in the above statement.

money, the monies paid out and received by producers may differ considerably.

There are many persons who believe that differences in the relative money flows are of major significance as a structural feature of the American economy, instituting or contributing to declining use of resources under some conditions and to expanding use of resources under other conditions. At the present time, there is too little data available to measure the magnitude of such discrepancies in the circuit flow of money with any degree of precision. Yet potentially they seem so important that intensive research in this field is called for. Is sufficient purchasing power being generated by business and government together to bring about the full employment of available resources, insofar as purchasing power alone can do this? Under what conditions is a deficiency likely to arise and how could it be remedied? The answers to these questions are important for understanding of the financial overlay to the structure of production. Yet in this report the most that can be done is to indicate the magnitude and character of financial flows without being able to indicate the magnitude of any discrepancies in relative flow which might have occurred.

Even this more meagre objective involves difficulties due to the incompleteness of the available data. It is particularly difficult to trace through the money flows involved in the process of capital formation. For this reason the statistical data will be limited to the flow of income into the hands of consumers, the disposal of this income, and the flow of money between producers.

#### Money Flows to Consumers as Income

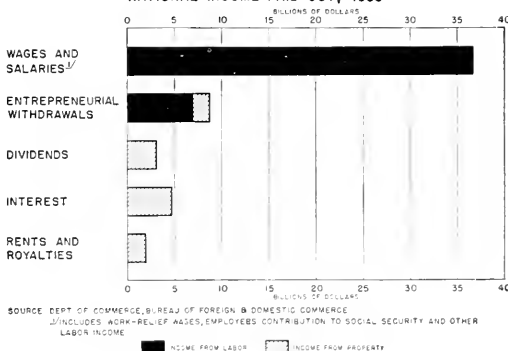
The total flow of money to consumers as income amounted to approximately 55 billion dollars during 1935. The form in which this income was received is indicated in chart I.<sup>4</sup> Approximately two-thirds was received as wages and salaries, a little under one-sixth as a return from property in the form of interest, dividends, rents, and royalties, and the remainder as entrepreneurial withdrawals derived from such activity as farming in which both labor and physical capital are supplied by the income receiver. A very rough allocation of this last amount between property and labor is suggested in the chart. On this basis nearly four-fifths of income receipts of consumers can be attributed to receipts from labor and approximately one-fifth to receipts from property. The industrial source of this income is indicated in chart II.<sup>4</sup>

The changes in the amount of money income paid to consumers are indicated in charts III and IV.<sup>4</sup> In these charts the data for the years 1919 to 1922 reflect the

violent readjustments which were the aftermath of the war, particularly the violent price decline of 1920-21 and tell no clear story. The years from 1923 to 1929, a period of relative price stability and relatively full employment, are more significant in the story they tell of trends of change. In this period, consumer income shows a steady upward trend. The income of farmers and other entrepreneurs shows a gradual absolute increase but falls behind in the proportion of the total, dropping from 17.2 percent of the total in 1923 to 15.7 percent in 1929. The remaining consumer income was derived in almost constant proportions from labor and from property, 79.1 percent coming from wages and salaries in 1923 and 78.0 percent in 1929, an insignificant difference in the light of the possible error in the income estimates. In the depression period, 1929 to 1932, the total consumer income dropped precipitately, but the relative importance of income from property, labor, and from entrepreneurial activity as a source of consumer income remained virtually constant, though interest became a larger proportion of income from property as total consumer income declined while salaries in similar fashion became a larger proportion of income from labor. In the recovery period from 1933 to 1937 total consumer income recovered most of its depression drop, wages and salaries recovering slightly more than income from property. On the whole there appears to have been a remarkable degree of stability in the division of income between labor and property in spite of the violent changes in the total amount of consumer income.<sup>5</sup>

<sup>5</sup> This does not mean a high degree of stability in the proportion of national production going to labor and capital respectively since the dividends paid by corporations in any time period are not necessarily just equal to the profits made. In periods of high or increasing profits corporations as a group are likely to add to their surplus while in periods of low or declining earnings they are likely to pay out in dividends more than they are currently earning. Since this chapter is concerned with money flows rather than with the division of products it is the income paid out not that produced which is important.

CHART I  
NATIONAL INCOME PAID OUT, 1935



<sup>4</sup> For the data on which these charts are based see appendix 18, section 11.

The relative distribution of income among different income groups has already been shown in chapter II, chart I, for 1935-36. Approximately 70 percent of consumer income went to persons or families with incomes under \$3,000, over 80 percent to consumers with incomes under \$5,000, and approximately 13 percent went to consumers with incomes over \$10,000. No reliable information is available as to any shifts in income distribution which may have arisen in recent years but the relatively stable proportion of consumer income derived from labor and property respectively suggests that no violent changes in the proportionate distribution of income between different groups of consumers have taken place.<sup>6</sup>

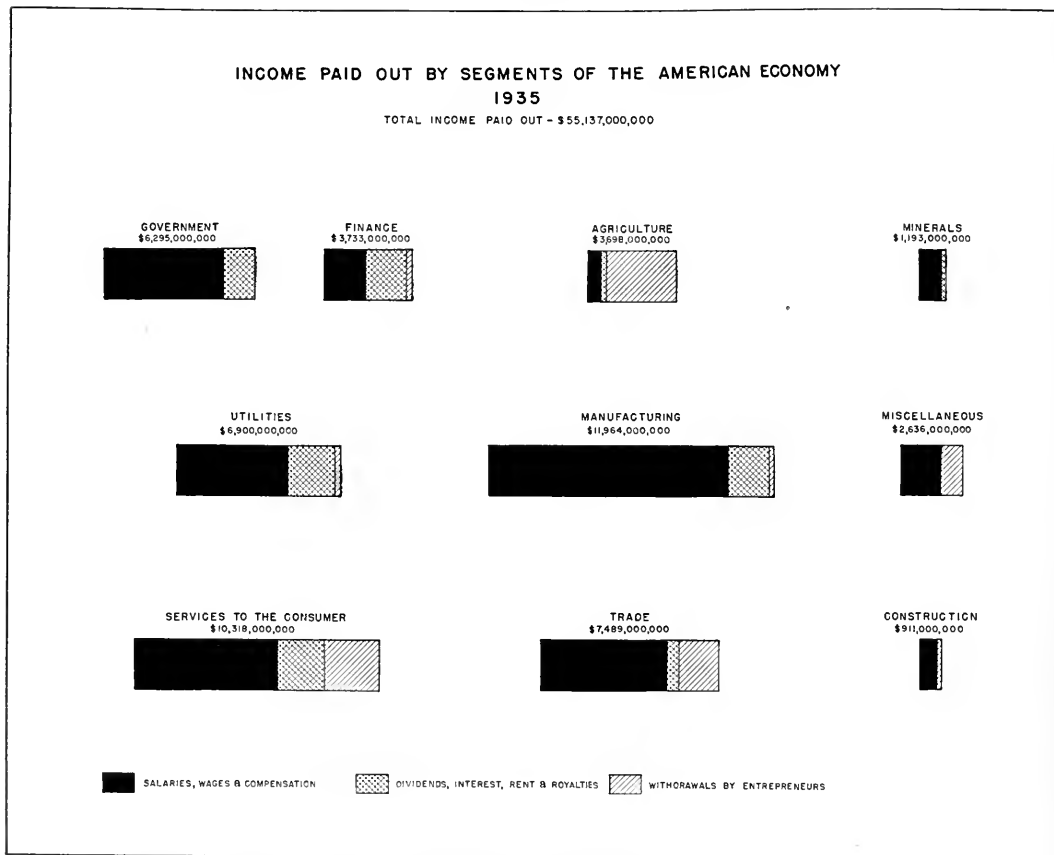
<sup>6</sup> It would be quite possible for a large shift in proportionate distribution of income of income to occur without any significant effect on the proportions of income derived respectively from labor, property, and entrepreneurial activity, but such a shift seems unlikely.

#### Money Flows Involved in the Disposal of Consumer Income

While the available data does not make it possible to trace through the two main flows from consumers to producers into current consumption and capital formation respectively, it is possible to throw some light on the initial step in those flows by examining the disposal of consumer income. Consumers can use their income to finance consumption, whether spending it themselves, paying direct taxes, or making gifts to institutions which spend it on social consumption; or they can save their income, either holding the savings in the form of money or investing them in securities or property.

In table I, estimated consumer income in 1935-36 is divided into the four categories, expenditure on con-

CHART II

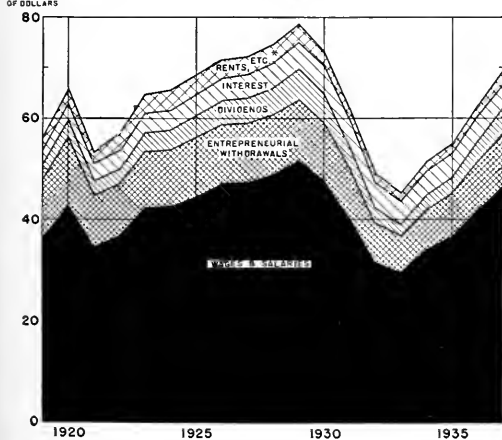


sumption, personal tax payments, gifts, and savings.<sup>7</sup> The 50 billions of expenditures on consumption represent direct payments to producing enterprises for commodities and services plus taxes paid in connection with such goods<sup>8</sup> while the \$89 millions paid by consumers in personal taxes constitute one of the bases for financing the services rendered by government. Much of the 2,178 million dollars disposed of as gifts went to finance the services rendered by such institutions as churches, hospitals, and schools. The figure of six billions of income estimated to have been saved by consumers is a very much less accurate figure than that for consumer expenditure but does reflect roughly the magnitude of consumer savings. This sum may in part have been held by them in the form of money, thus constituting an addition to their money holdings; in part it may have been invested in such a way as to finance expenditure on consumption by other consumers as in the case of savings used to provide the loanable funds of installment finance companies; presumably only a part was invested as a step in the process of capital formation and used to finance the construction of new plant or additions to producers' inventories. Data are not available to estimate this latter amount. However, it may be said that of the money flows from consumers to producers in the disposal of consumer income approximately five-sixths represented direct payment for commodities and services, and roughly one-tenth represented savings invested in plant and producers'

<sup>7</sup> In this calculation taxes paid by consumers on owned homes are treated as part of expenditure on housing and all owned homes are treated as independent investments.

<sup>8</sup> Such as sales taxes, automobile taxes, and real estate taxes.

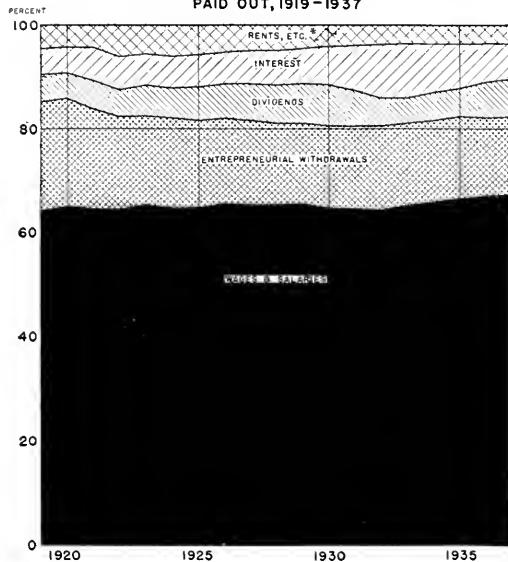
CHART III  
AMOUNT OF NATIONAL INCOME PAID OUT, 1919-1937



<sup>8</sup> RENTS, ROYALTIES AND BALANCE OF INTERNATIONAL PAYMENTS  
SOURCE: DEPARTMENT OF COMMERCE AND NATIONAL BUREAU OF ECONOMIC RESEARCH

CHART IV

PROPORTIONATE DISTRIBUTION OF NATIONAL INCOME  
PAID OUT, 1919-1937



<sup>8</sup> RENTS, ROYALTIES AND BALANCE OF INTERNATIONAL PAYMENTS  
SOURCE: DEPARTMENT OF COMMERCE AND NATIONAL BUREAU OF ECONOMIC RESEARCH

inventory or loaned to government or disposed of in some other fashion.

TABLE I.—Disposal of consumer income 1935-36

	Million dollars
Expenditure on consumption <sup>1</sup> .....	50,214
Personal taxes <sup>2</sup> .....	889
Gifts.....	2,178
Net consumer savings.....	5,978
Total consumer income.....	59,259

Source: *Consumer Expenditures in the United States*, National Resources Committee, 1939.

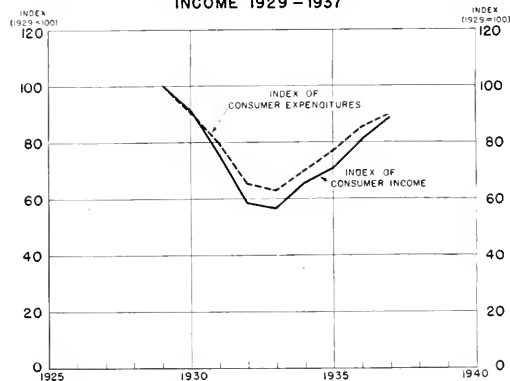
<sup>1</sup> Includes taxes paid in connection with goods consumed, such as sales taxes, automobile license fees, and real estate taxes on owned homes. Also includes the value of home produced food and imputed interest on the value of owned homes.

<sup>2</sup> Includes income taxes, poll taxes, and certain personal property taxes.

No data are available to show the absolute changes through time in the disposal of consumer income taxes, savings, and consumption. However, it is possible to indicate very roughly the magnitude of the changes in the volume of consumer expenditure in very recent years. Changes in consumer expenditure are indicated by an index of total consumer expenditures from 1929 to 1937 in chart V along with an index of consumer income. It is clear that the two fluctuated together during the depression, though expenditure appears to have dropped less and recovered less than

CHART V

## INDEX OF CONSUMER EXPENDITURES AND CONSUMER INCOME 1929-1937



Source: See appendix 18, section 21.

consumer income. The fact that the index for consumer expenditure runs above that for consumer income does not mean negative savings but only a decline in savings relative to the base year, 1929.

## Money Flows Between Producers

Further light can be thrown on the money flows away from consumers by examining the money flows between producers in the successive stages of production. No figures are available presenting these money flows broken down into those flows concerned with current consumption and those concerned with capital formation but the combined money flows between different industries have been worked out for the

year 1929 in an unpublished report by Dr. Wassily W. Leontief and are included as Appendix 17 in this report.<sup>9</sup> The results of his analysis are summarized in slightly modified form in table II.<sup>10</sup> The precise figures given do not exactly coincide with other figures contained in this report but the differences are minor insofar as the relative magnitudes of the money flows are concerned.

The figures in table II cover the money flows in 1929 between each of the main segments of the economy except government and finance. Figures are also given for the flows between producers and consumers and the flows between this country and foreign countries in payment for commodities. The rows across the table give the money received by the enterprises in any particular segment from enterprises or individuals in the same segment and from each of the other major segments. Thus, in agriculture, farmers received over 5 billion dollars from other farmers for corn, hay, seed, cattle, and similar items used in further farm production, about the same amount from manufacturing enterprises for wheat, cotton, cattle, and other raw materials for processing or fabrication, about 3 billion for agricul-

<sup>9</sup> Permission to use this material in advance of publication has been generously granted by Dr. Leontief and by the Harvard University Committee on research in the social sciences which is financing Dr. Leontief's study.

<sup>10</sup> The figures in the summary differ from those in Dr. Leontief's table in three respects besides that of summarization. First, the segments, government and finance have been added, though only data on income received by consumers is included under these headings. These amounts have been deducted from Dr. Leontief's item 43c x 44—*Total Services x Undistributed* to make the totals correspond. Second, the consumer service segment has been added and Dr. Leontief's item 43c x 43—*Total Services x Consumption* is treated as measuring both consumer income derived from consumer service enterprises and consumer expenditure on consumer services. This involves some error in that the consumer service activities do involve some payments for materials, taxes, etc., but these are probably not great in comparison with the total item. Finally, the items classified by Dr. Leontief as consumption have been divided up between a new segment, trade, and the category consumer expenditure to which have been added all payments estimated to have been made by retail trade to wholesale trade. The procedure followed is indicated in appendix 18, section 13.

TABLE II.—Major money flows in the American economy, 1929<sup>1</sup> (exclusive of investment flows)

(Millions of dollars)

The economic units listed at the right paid the amounts of money indicated in the table to the economic units listed below	Money paid by—								Money received from exports	Money payments not allocated to payer	Consumer expenditures	Gross total	Net total
	Government units	Financial enterprises	Agricultural enterprises	Mining	Utilities	Manufacturing	Consumer service enterprises	Trading enterprises	Construction				
Money received by—													
Government units.....	?	?											
Financial enterprises.....	?	?											
Agricultural enterprises.....	?	?	5,346			5,408		2,953		1,194	259	15,488	10,142
Mining.....	?	?	10	357	525	3,403		1,018	1,180	215	759	7,467	7,110
Utilities.....	?	?	741	1,521	213	2,201				73	3,249	11,144	10,931
Manufacturing.....	?	?	1,931	646	2,687	18,467		24,917	2,111	3,675	13,895	70,649	52,182
Consumer service enterprises.....	?	?										14,153	14,153
Trading enterprises.....	?	?								1,385		47,106	48,881
Construction.....	?	?									3,508	2,623	6,971
Money paid for imports.....	?	?	50	24	5	3,647		842	27		402	4,997	4,997
Money receipts not allocated to recipients.....	?	?	489	2,207	2,136	19,765		6,552	822	73		37,922	37,922
Income received by consumers.....	6,470	8,828	6,654	2,873	6,782	20,406	14,153	10,914	3,079		5,791	85,950	85,950
Gross total.....	6,470	8,828	15,221	7,662	12,639	73,810	14,153	68,757	7,219	6,615	27,863	324,883	
Net total.....	6,470	8,828	9,875	7,305	12,426	55,343	14,153	47,196	7,219	6,615	27,863	278,939	

<sup>1</sup> Summarized in a slightly modified form from an analysis given in an unpublished report by Dr. Wassily W. Leontief. For details, see appendix 17, and appendix 18, section 13.

tural products sold to wholesalers or retailers for retail distribution, over a billion from direct exports and approximately a third of a billion from the sale of products direct to consumers, leaving approximately a quarter of a billion of farm receipts in 1929 not accounted for. The gross total of farm receipts from all sources appears to have been over 15 billion, while the net total of receipts by agriculture from sources other than agriculture amounted to approximately 10 billion.

By reading down the first column in the table it is possible to see roughly the disposal of agricultural funds. The 5 billion already referred to was paid by farmers to other farmers, an insignificant amount was paid to mining enterprises presumably mostly for coal, three-quarters of a billion was paid to utilities mostly to the railroads for the transport of farm products, nearly two billion was paid to manufacturers for agricultural machinery, fertilizer, fuel, processed feed, and other things necessary to farm operation. Over 6½ billion was paid out by farmers to consumers in the form of wages, rents, and interest or represented the income of farmers derived from their farm operations. Less than half a billion of farm expenditure remains unaccounted for, a part of which must have been taxes paid to government. The gross total of such items amounted to over 15 billion while the net total of payments made by farmers to other parts of the economy or received as income by farmers amounted to nearly 10 billion. The money payments and receipts of each segment of the economy except government and finance can similarly be read from the table.

This table should not be treated as anything more than a very crude first approximation to the volume of the money flows overlying production.<sup>11</sup> For most segments it shows the relative magnitudes of the money flows, not their precise amounts. It is weak as a representation of all the money flows in 1929 in three major respects. First, it gives only a single item in the case of government and in that of finance. Second, for trade it gives only the minimum money transactions which are estimated to have been involved as commodities were purchased by wholesale trading enterprises, sold to retailers, and in turn sold to consumers or as commodities were purchased directly from producers by retail enterprises and sold to consumers. It does not cover secondary wholesale transactions such as arise when there is more than one middleman between producer and retailer and it does not include in any way such trading transactions as arise when producers

purchase commodities from wholesale or retail trading enterprises, the sales by one producer to another through middlemen being treated as though they were direct sales. Finally the table is primarily concerned with the money flows overlying physical production and does not cover the money flows involved in the process of saving and investment. As more complete statistical data become available it would be desirable to complete and make more precise this representation of the money flows involved in production.

The more important of the money flows shown in the table are made graphic in chart VI. For each segment, the money flows between consumers and producers are indicated in gray while the flows between pairs of producers are indicated in black. At the left of each segment the money flowing to consumers as income is represented at the top and money flowing to producers in the form of consumer expenditure is indicated at the bottom. At the right of each segment the money flowing from one producer to another producer in the same segment is indicated. In addition the most important money flows between producers in different segments are indicated. If the remaining money flows were also shown the chart would become too complex to follow. For that reason only their magnitude is indicated under the caption "other." As can be seen from a glance at the chart, the main trunk of money flows runs from consumers to trade, then to manufacturing and in turn to agriculture and to mining, but becomes smaller at each stage as it is reduced by the payments made to consumers as income from labor or capital and those made to the segments supplying services to the whole economy, the utilities, financial institutions, and governmental units. It is this money flow as money moves from consumers into the channels of trade and back to consumers again or from producers to consumers and back to producers through the channels of trade that keeps production going in the American economy.

### Factors Associated With Money Flows

The flow of money through these channels is associated with a variety of factors of which the four most important are changes in the total supply of money, the building up or depleting of money balances held by particular economic groups, shifts in the relative flow of funds into current consumption and capital formation, and, finally, changes in price relationships. The last of these will be discussed in chapter VIII. In this chapter a beginning will be made toward delineating the characteristics, magnitude, and changes in (1) the total money supply, (2) the money balances held by different economic groups, and (3) the proportioning of money flows between current consumption and capital forma-

<sup>11</sup> In developing the data underlying this table Dr. Leontief was concerned primarily with the money value of goods and services produced by private or corporate enterprise and the money payments made in that connection. He made no attempt to cover all financial flows. The incompleteness of the table given above as a representation of all money flows results from the quite different purpose involved in the compilation of the data on which it is largely based. This incompleteness in no way reflects on Dr. Leontief's work.

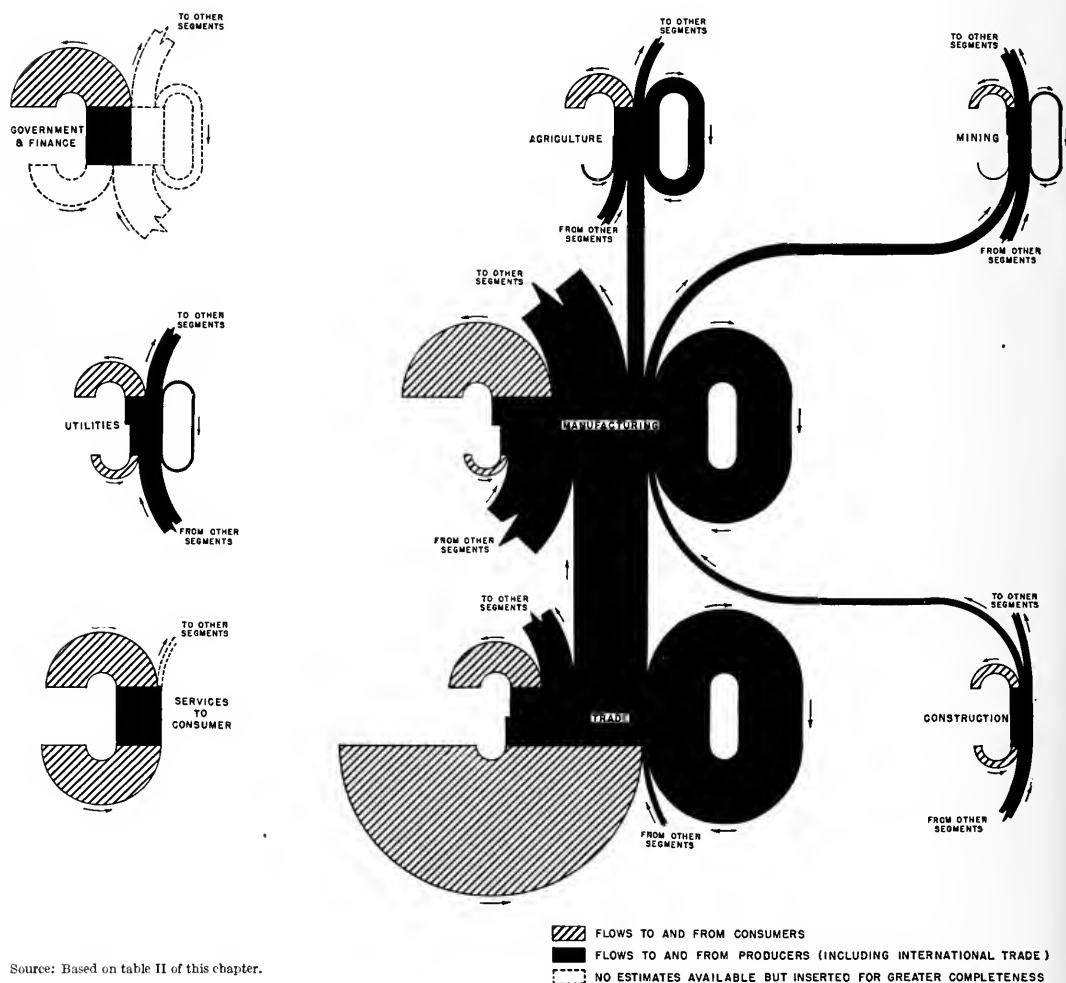
tion. The lack of adequate data will make the statistical presentation somewhat fragmentary as was the case with the basic money flows. The limited statistical material is included here partly because some sketching in of these factors is essential to an understanding of the structure of the American economy and

partly in the hope that subsequent research and data collection can fill out the more significant gaps.

### The Money Supply

On June 30, 1935, the total supply of money outstanding in the United States amounted to approxi-

CHART VI  
MAJOR MONEY FLOWS IN THE AMERICAN ECONOMY 1929  
EXCLUSIVE OF FINANCIAL FLOWS



Source: Based on table II of this chapter.



mately 26.5 billion dollars.<sup>12</sup> This was composed of approximately 4.8 billions of dollars in currency (bills and coins outside of banks) capable of being used as a means of payment in hand-to-hand circulation and 21.8 billions of dollars of demand deposits carried as book entries in banking records and capable of being transferred in these records from the name of one depositor to that of another through checks.<sup>13</sup> By far the larger proportion of the money supply is thus composed of demand deposits, currency contributing only 18 percent of the total.<sup>14</sup>

The variations in the money supply from 1921 to 1937 are indicated in chart VII. The money supply expanded fairly steadily from 1921 to 1929, then contracted sharply to the bank holiday in 1933, and expanded again so that by the end of June 1937 it amounted to over 32 billion dollars. The bulk of this variation took the form of changes in the outstanding deposits. Between the middle of 1929 and 1933, demand deposits dropped over 8 billion dollars, or more than one-third, while most of the increase in money supply after 1933 was in the form of demand deposits.

The wide variations in the total money supply are of considerable importance to the structure of the American economy though there is no general agreement as to the exact role that these variations have played in connection with the variations in the level of production and of prices. Since this report is concerned primarily with the structural characteristics of the American economy rather than its operating characteristics, the exact effect of changes in the money supply on changes in the level of economic activity does not

need to be discussed. What is significant for the economic structure is first, that such wide variations in the volume of money outstanding can and do take place within relatively short periods of time,<sup>15</sup> and second, that these changes in money supply necessarily alter the buying power of individuals or institutions.

The great bulk of the money supply in the United States is provided through three channels, bank credit, gold inflow, and government issue. Of these, bank credit is by far the most important while the volume of money outstanding as a result of direct government issue is relatively small consisting mostly of silver certificates, subsidiary coins, and a relatively small volume of United States notes.<sup>16</sup> Likewise the major variations in money supply derive from changes in bank credit. When the banking system expands its loans and investments and thereby increases the money supply, it is providing individuals, enterprises, or government units with buying power without at the same time reducing the buying power of anyone else.<sup>17</sup> Likewise, when bank credit is contracted, the buying power of some economic units is reduced without any

<sup>15</sup> This is a characteristic which sharply distinguishes the American from the English economy, in which no serious contraction in the money supply occurred in the depression.

<sup>16</sup> Both Federal Reserve notes and national bank notes come into circulation primarily as a result of the extension of bank credit or the flow of gold into the banking system.

<sup>17</sup> This is true whether the money supply is expanded by making loans or by purchasing securities. In the latter case, if the securities are newly issued and purchased by the bank directly from the issuer the effect on buying power is the same as if the bank had made a loan to the issuer, though the legal effect is different. If the securities purchased have been previously issued, the bank purchase provides the seller with money which the latter can spend on consumption or investment, or hold as addition to his money balance.

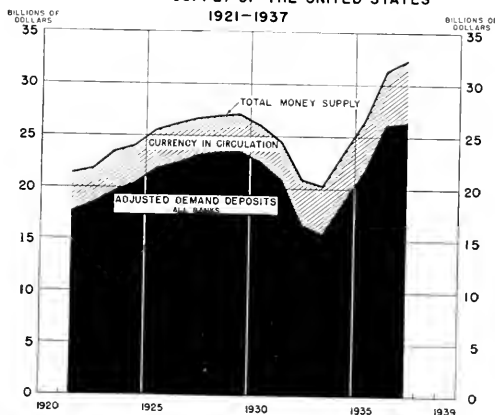
<sup>12</sup> The term "money" has been given many different meanings in economic literature, some more comprehensive than others. In terms of the structure of the whole economy, the significant meaning is whatever is customarily given in exchange for goods, securities, or in payment for labor. In this country most goods, securities, or labor transactions involve payment in currency or the transfer of demand deposits from the name of one person or institution to that of another. Some transactions involve barter of goods for goods, as when the farmer swaps butter and eggs for farm supplies at the village grocery. Some transactions involve payment in securities, as when a corporation exchanges its own securities for those of another over which it seeks some measure of control or when Liberty Bonds were used to pay for a new automobile or parlor furniture. But the bulk of transactions involve currency or demand deposits as one of the things exchanged in the transaction and the term "money" in this report will be limited to these two media of payment.

Time deposits are excluded from the category "money" chiefly because they are seldom used as a basis for payment in transactions, usually having to be converted into demand deposits or currency before they can be spent, just as a short-term government note usually has to be converted before it can be the basis for expenditures. Time deposits, call loans, and short-term paper have certain of the characteristics of money but not other characteristics. All represent highly liquid assets, but only currency and demand deposits are customarily used to pay for goods, labor, or securities.

<sup>13</sup> Checks are often thought of as money, but in practice, except when funds are being withdrawn in currency, a check is essentially a letter to a bank asking the bank to transfer the book entry in the name of one depositor to the name of another depositor, or to a different account of the same depositor, in the same or another bank. It is the bank obligation represented by the book entry and referred to as a deposit which constitutes a part of the money supply, not the check by means of which title to the deposit is transferred.

<sup>14</sup> Gold ceased to be part of the currency supply in March 1933 when gold was retired from circulation. From that time on no part of the internal money supply of the United States has consisted of gold.

CHART VII

THE MONEY SUPPLY OF THE UNITED STATES  
1921-1937

Source: See appendix 18, section 14.

corresponding increase in the buying power of other units. The effect of such changes in buying power presumably depends on the particular conditions under which they occur. The magnitude of their possible effect is suggested by the fact that between 1929 and 1933, the money supply was reduced by practically 7 billions of dollars through the contraction of bank loans and investments while between 1933 and 1937 it was expanded by 12 billion dollars primarily through the expansion of bank credit. Such extensive withdrawals or injections of buying power cannot fail to have an effect on the flow of money and on economic activity.

### Money Balances Held by Different Economic Groups

Whatever the magnitude of the money supply at any given time, all the money outstanding must be in the possession of individuals, enterprises, governments or other economic units in the form of money balances.<sup>18</sup> These balances are important to the structure of the American economy because they reflect the power of the holders to put money into circulation by reducing their money balances and to withdraw money from current circulation by expanding their money balances. This power to start and stop the flow of money by varying money balances can have much the same effect on money flows and on production as have changes in the total money supply.

From the point of view of money flows, the most significant money balances are those held (1) by government, especially the Federal Government, (2) by producing enterprises, (3) by financial institutions other than banks, and (4) by individuals.

Actual data on the money balances of different economic groups are surprisingly scarce, considering their importance to the economy. The Federal Government regularly publishes its holdings of currency and demand deposits but for other groups only the very crudest data are available on the total money balances. Estimates are, however, available for 1933 and 1935 covering that part of money balances that is held in the form of demand deposits. Since demand deposits constituted over 75 percent of the total money supply in both these years, the figures on deposit holdings give a rough indication of the distribution of total money holdings even though currency was presumably not distributed in exactly the same proportions as demand deposits.

<sup>18</sup> The terms "possession" and "held by" are used in this chapter to refer to all forms of money even though bank deposits cannot be in the possession of their owner or held by them in the physical sense that coins or notes can be in their owners' possession or holding.

It should also be noted that the money outstanding performs two quite different functions. It not only enters into transactions, passing from hand to hand in exchange for goods, labor, or securities, but between transactions it acts as a store of value in the form of a money balance which represents to its possessor a liquid asset which can be exchanged at a moments notice for other things.

The balances estimated to have been held by each of the different economic groups on December 31, 1933 and 1935, are given in table III. Of the total demand deposits of 21.9 billion outstanding in December 1935 approximately 7.6 billion were held by business enterprises, 5.0 billion by financial institutions and enterprises, 4.1 billion by public bodies and less than 5.2 billion by individuals. Of the amount held by individuals, over 430 million was held in deposit accounts of over \$100,000 presumably for the most part the holdings of persons with larger incomes, while a very considerable sum must have been held by persons with intermediate incomes. Only a relatively small part could have been held by the individuals or families with smaller incomes who constitute the main source of consumer expenditure. Probably less than 14 percent<sup>19</sup> and possibly less than 10 percent of the total of demand deposits was held by consumers with incomes under \$5,000 who provided over 88 percent of consumer expenditure in 1935-36. In contrast, business enterprises, financial institutions and investors between them held the great bulk of deposit money. Just how currency was divided between these groups can only be surmised. It is probable that a very much larger proportion of currency outside of banks was held by consumers than the proportion of demand deposits held by them. But even if half of the currency were held by individuals or families with incomes under \$5,000, their total money holdings, deposits, and currency combined would amount at the very most to a fifth of the total money supply outstanding.

TABLE III.—Estimated distribution of demand deposits  
1933 and 1935

[Amounts in millions of dollars]

	Deposit balances		Percent to total		Absolute increase	Percentage increase
	Dec. 31, 1933	Dec. 31, 1935	Dec. 31, 1933	Dec. 31, 1935		
Business.....	6,120	7,640	40.6	34.9	1,520	24.8
Finance.....	2,360	4,960	15.8	22.7	2,570	107.5
Government and other public bodies.....	2,690	4,130	17.9	18.9	1,440	53.5
Consumers and unclassified.....	3,870	5,130	25.7	23.5	1,260	32.6
Total demand deposits.....	15,070	21,860	100.0	100.0	6,790	45.1

Source: Lauchlin Currie "The Economic Distribution of Demand Deposits" *Journal of American Statistical Association*, June 1938, p. 321.

<sup>1</sup> Includes individuals private accounts regardless of the size of the account but excludes business accounts of individuals.

<sup>2</sup> Adjusted for transit items.

These figures are significant for the structure of the American economy, because they indicate that the bulk of the money outstanding in 1935 was held by business enterprises or by financial institutions and individuals primarily concerned with the investment of

<sup>19</sup> For basis of estimate see appendix 18, section 15.

funds and likely to use their money balances only to a minor extent to purchase goods for consumption. Only a relatively small proportion of the total money supply was held by the individuals who provide the bulk of consumer expenditures. Nearly a fifth was held by public bodies capable of directing funds either into current consumption or capital formation. It is thus apparent that the bulk of consumers live on a more or less hand-to-mouth basis so far as their money holdings are concerned. As a group their money holdings could not have been sufficient to finance much more than a month of consumer expenditure at the 1935-36 rate. A very great percentage change in the money holdings of this group could occur without a very large contribution to current buying power. This is important for the functioning of the American economy because it means that great increases in expenditure on the bulk of consumers could not arise directly out of the use of money balances already held by consumers. They could arise only if consumers received increased incomes or if they either borrowed or trenced on previous investments. On the other hand, the small increases in consumer expenditure such as might arise if consumers depleted their money balances might have very important stimulating effects on economic activity much greater than their absolute magnitude, just as a relatively small increase in money holdings involved in what has sometimes been called a buyers' strike could have a cumulative depressing influence.

The very large changes which can occur in the relative money balances held by different economic groups is suggested by the comparison of the demand deposits of different groups in 1933 and 1935 already given in table III. While the total demand deposits increased nearly 7 billion or 45 percent between these two dates, money holdings of financial companies more than doubled, while the holdings of individuals increased only one-third. Of the total increase in money holdings nearly two-fifths was absorbed into the balances of financial institutions, less than one-fifth into those of consumers, and a fifth each by business and government. The magnitude of these shifts emphasizes the need for more extensive and exact information on money balances. The significance of the shifts will be discussed in the next section in connection with the proportioning of money flow between current consumption and capital formation.

### **The Proportioning of Money Flows Between Savings and Consumption**

The expansion or contraction of the money supply and the building up or depleting of money balances are not the only characteristics of the system of money flows which are of significance to the economic structure. The direction of money flows as between current con-

sumption and capital formation is a factor of major significance. As money flows through economic channels, there are certain points at which it is directed in such a way as either to finance current consumption or to finance new plants, equipment, and additions to inventory. Sometimes the determination is simple and direct, as where a consumer spends his income on consumption goods or invests a part of it in the construction of a new house or when a corporation invests undistributed income directly in the construction of a new plant. Sometimes the determination of the money flow is a complex matter involving a combination of decisions at many points, as when a consumer saves part of his income and hands it over for investment to some financial institution which, in turn, passes the money savings on to some business enterprise that uses the funds either to expand its plant or to extend credit to consumers. Or the funds may be loaned to some government unit and the latter may determine whether they will be used for public works, for social expenditure on consumption, or in some other manner. However complex the process by which funds are directed into one or the other use, the direction is of significance to the structure of production because it conditions the volume of productive activity going respectively into the supply of goods currently consumed and into new plant, equipment, and inventory.

No attempt can here be made to disentangle all the different channels through which money flows in the process of financing production nor can all the different points be indicated at which discretion can be exercised to direct the flow into the financing of one or the other of the two basic types of productive activity. The most that can be done in this report is to indicate certain major points at which such discretion can be exercised and to suggest some of the ways in which that discretion is exercised.

The groups having discretion over money flows that are of major significance for the structure of the whole economy are (1) consumers in their disposal of consumer income, (2) financial institutions through the direction in which they lend or invest funds, (3) business enterprises through the acquisition and disposal of funds, and (4) governmental units, particularly the Federal Government, through their acquisition and disposal of funds.

### **Directing of Money Flows by Consumers**

In chapter II, the expenditure of consumers on current consumption was examined in considerable detail as an indication of the structure of wants. But little attention was given to the factors which affect the magnitude of the total expenditure on consumption, or on the other ways of disposing of consumer income such as through

investment, gifts, and taxes. The choice which consumers are in a position to exercise in the disposal of their income between these categories is of major importance to the structure of the whole economy.<sup>20</sup>

The estimated disposal of consumer income in 1935-36 has already been indicated in chapter II, <sup>21</sup> table I. Approximately 85 percent of the 60 billion of consumer income went for expenditures on current consumption while 10 percent was saved, nearly 4 percent was given away, and 1.5 percent paid to government units in personal taxes.<sup>22</sup>

Data on the disposal of consumer income between taxes, consumption and savings for other periods are lacking, but analysis of the 1935-36 data can throw some light on the way changes in the distribution of consumer income or in its amount might be expected

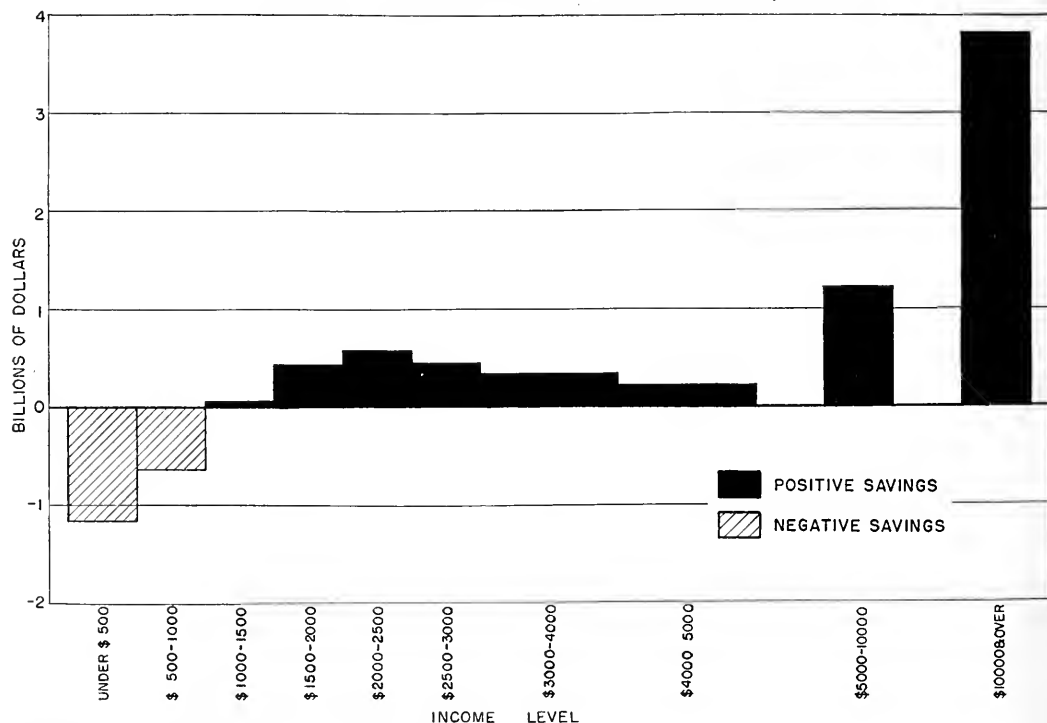
<sup>20</sup> Under any given set of tax laws, consumers presumably have little discretion in the amount of taxes they will pay but the laws levying taxes are to some extent determined by consumer attitudes and reflect the willingness of consumers to be taxed for the services rendered by government units.

<sup>21</sup> See above, p. 11.

<sup>22</sup> No account is taken in the figure for direct taxes of the indirect taxes paid in the purchase prices of goods or the sales taxes added thereto.

to influence its disposal provided there were no significant price changes and after consumers have become adjusted to the new condition of consumer income. A more equal distribution of a given amount of consumer income appears likely to produce a decrease in the volume of savings and in taxes counterbalanced by an increase in the expenditure on consumption, though the magnitude of changes likely to occur in the near future do not appear to be very significant. The amount of the aggregate consumer savings in 1935-36 is shown in chart VIII. More than half of the positive consumer savings in that period were made by families with incomes over \$10,000 while two-thirds were made by families with incomes over \$5,000. If the total consumer income were the same but more evenly distributed a smaller proportion would go to the families in the higher income brackets who are likely to save a large proportion of their income and more would go to those likely to spend most of their income on consumption so that total savings would be reduced. Conversely, a less even distribution would

CHART VIII  
AGGREGATE CONSUMER SAVINGS BY INCOME LEVELS, 1935-1936<sup>(1)</sup>



tend to increase the amount of saving, thereby reducing the total expenditure on consumption.

A very rough idea of the magnitude of the changes in savings likely to result from changes in income distribution can be obtained by making the extreme assumption that the total consumer income in 1935-36 was spent by families having the average income of that period and comparing the resulting disposal of income with the actual disposal in 1935-36. The comparison is made in table IV, using the \$1,250 to \$1,500 income group to represent the average.<sup>23</sup> This table clearly indicates the tendency for a smaller proportion of consumer income to be saved and a larger proportion to be spent on current consumption as a given consumer income is more evenly distributed. However, with the extreme assumption of equal distribution compared with the actual 1935-36 distribution the absolute shift over from savings to current consumption would amount to less than 5 billion dollars. A shift of 10 percent of the 1935-36 income from consumers with more than average incomes to those with less than average incomes, or the reverse, would be likely to produce a shift of less than 1.6 billion in the total amount saved by consumers. Such a shift in income distribution would not directly alter the aggregate of consumer expenditure to a significant extent compared with the magnitude of the changes associated with depression. It might, however, have a very significant effect on the balance between saving and consumption which make for expansion or contraction of economic activity and of total consumer income.

Of very much greater importance are the variations in savings and expenditures due to variation in the total amount of consumer income. In table V the disposal of consumer income is indicated for four different sizes

<sup>23</sup> The average in 1935-36 was \$1,502.

TABLE IV.—Effect of changes in income distribution on the disposal of consumer income

	Disposal of consumer income		Ratios	
	With the unequal distribution of income existing in 1935-36, actual disposal	With equal distribution of income, estimated disposal if made in the same proportions as \$1,250-\$1,500 income group	With unequal distribution of income	With equal distribution of income
	Million dollars	Million dollars	Percent	Percent
Expenditure on consumption...	50,214	55,756	84.7	94.1
Taxes (personal).....	889		1.5	
Gifts.....	2,178	12,404	3.7	14.0
Net consumer savings.....	5,978	1,069	10.1	1.9
Total consumer income...	59,259	59,259	100.0	100.0

Source: Based on data given in *Consumer Expenditures in the United States*, National Resources Committee, 1939.

<sup>1</sup> Breakdown of gifts and taxes by income levels not available.

of income on the assumption that the distribution of the income was in the same proportion as the actual distribution in 1935-36, that prices were the same as in that year, and that the income disposal of each income group followed the pattern of the corresponding group in 1935-36. This table indicates that, under the assumed conditions, both expenditure on consumption and current savings could be expected to increase as consumer income expands, but that the increase in the latter would be likely to be very much more rapid. An increase of consumer income from the 1935-36 level of 60 billion to 80 billion might be expected to bring an increase of something like 13 billions in expenditure on consumption and an increase of nearly 6 billion in consumer savings. Thus an increase in consumer income of 33 percent under the assumed conditions could be expected to result in an increase of only 25 percent in expenditures on consumption and an increase of nearly 100 percent in savings. The assumptions underlying these figures are to arbitrary to make them directly applicable to the actual disposal of income, but they do indicate the character and magnitude of the changes in the proportion of income saved and spent on current consumption.

The evidence they give is clearly supported by the behavior of consumer income and expenditure during the depression as they are reflected in the indexes of chart V already presented. According to these indexes, expenditures on consumption dropped proportionately less from 1929 to 1932 than did consumer income whereas in the recovery period the behavior was reversed. Presumably taxes, gifts and savings together must have dropped proportionately more than income between 1929 and 1932 and recovered more subsequently. While there is no basis for separating out savings from taxes and gifts they must have constituted a sufficiently large proportion of the combined group in 1929 to dominate its behavior so that the greater stability of expenditure on consumption during the depression compared with consumer income must reflect the greater sensitivity to depression of consumer savings.

TABLE V.—Effect of changes in level of consumer income on consumer expenditures

Disbursement	Disposal of consumer income of—				Percent distribution			
	50 bil- lion doll- ars	60 bil- lion doll- ars	70 bil- lion doll- ars	80 bil- lion doll- ars	50 bil- lion doll- ars	60 bil- lion doll- ars	70 bil- lion doll- ars	80 bil- lion doll- ars
	doll- ars	doll- ars	doll- ars	doll- ars	doll- ars	doll- ars	doll- ars	doll- ars
Expenditures on consumption.....	44,080	50,784	57,254	63,494	88.2	84.6	81.8	79.3
Gifts and personal taxes.....	2,455	3,113	3,814	4,541	4.9	5.2	5.4	5.7
Net consumer savings.....	3,465	6,103	8,932	11,965	6.9	10.2	12.8	15.0
Total.....	50,000	60,000	70,000	80,000	100.0	100.0	100.0	100.0

Source: *Consumer Expenditures in the United States*, pt. III, National Resources Committee, 1939.

The tendency for a different proportion of consumer income to be spent on consumption at different levels of consumer income has major significance for the structure of the American economy. When both economic activity and consumer income are declining, the tendency for a larger proportion of consumer income to be spent on consumption must act to some extent as a force minimizing further decline. This influence could be counteracted by other forces, but in itself seems likely to be a significant factor at very low levels of economic activity. Conversely the greatly increased savings at the higher levels of consumer income suggest the possibility of oversaving in relation to expenditure on consumption. This possibility is one which calls for extensive study, both of the probable savings at different levels of consumer income and the opportunities for the effective use of savings.

#### **Directing of Money Flows by Financial Institutions**

To the extent that consumers invest their savings directly in new capital goods such as the construction of new homes or the development of privately owned enterprises, or to the extent that they loan their savings to others for expenditures on consumption, consumers determine the direction of the flow of funds into capital formation or current consumption. But to a significant extent current consumer savings are either held in the form of money or are handed over to financial institutions—banks, insurance companies, and similar institutions. In either case the financial institutions are placed in a position to determine the direction of flow, providing funds to finance current consumption as in the case of installment sales or consumer credit, to finance business enterprise, to finance government activity, or to finance individuals or other financial institutions purchasing securities. Investment funds directed into these different channels have quite different effects, those made available directly to consumers and to business enterprises going largely to finance consumption and capital formation respectively. To the extent that government is financed or to the extent that other security purchases or lenders are financed, the determination of whether the funds flow into consumption or capital formation channels is passed along. No attempt can be made here to disentangle these flows. Much data on various phases are available but they have never been put together into a comprehensive analysis. There is much need for tracing through the magnitude and characteristics of the different money flows involved in the investment of savings to discover their structural significance.

In addition to the handling and direction of investment funds, financial institutions are also in a position to dispose of income and depreciation funds arising from

their current operations. Because the problems arising from the disposal of such funds are alike for all corporations whether financial institutions or producing corporations, they will be taken up under the heading of business corporations.

#### **Directing of Money Flows by Business Corporations**

In the course of their operations many if not most corporations receive more money from the sale of their products than they expend for the raw material, labor, supplies and services necessary to their production. Part of this sum is customarily allocated to depreciation, part is paid to government in taxes and part may be used to pay interest charges. The remainder represents net income which is within the disposal of the corporation. It can either distribute this money to consumers as income subject to their disposal or it can save the money, investing it in securities, using it to finance new plants or inventories, extending credit on the basis of it or holding it as an addition to the corporation's money balances. In addition, corporations which have accumulated undistributed income in prior years can dissave by declaring dividends, paying out money in excess of that received as income and depleting their cash balances, reducing their investments or reducing their capital assets in the process. A corporation may thus be in a position to save out of its current income or dissave out of prior income with much the same effect as the saving or dissaving of consumers. This ability of corporations to save or dissave is of importance to the structure of the whole economy because it means that corporations can exercise some control over money flows which is independent of the direct processes of production. By saving part of their income, corporations add to the total of national money savings which must find an outlet through investment channels.<sup>24</sup> By dissaving through distributing dividends in excess of their current income, corporations can make a net contribution to consumer income.<sup>25</sup> The magnitude of corporate saving or dissaving is not directly dependent on productive activity and is therefore a more or less independent factor in the determination of money flows.

The discretion of a corporation over the disposal of income is paralleled by a second discretion of a similar nature, that over the disposal of funds allocated to depreciation. In carrying on productive activity, corporations make use of plant and equipment whose remaining useful life is steadily reduced through this use and through obsolescence with the passage of time. Many corporations also use up reserves of natural re-

<sup>24</sup> There is presumably a net contribution only if the total funds allocated to depreciation are also invested in new capital formation.

<sup>25</sup> If corporate income is distributed as dividends presumably some of the resulting consumer income would be saved but not all as would be the case with undistributed corporate income.

sources such as ore or coal in their current production. Since a corporation's acquisition of plant, equipment and natural resources presumably involved an initial capital outlay, the corporation must derive enough from its current operations to recover the current share of this capital investment<sup>26</sup> before its accountants can figure that the corporation has obtained a net income. The current share of the previous capital investment is customarily included by accountants as a depreciation charge<sup>27</sup> and included as a cost of the operations of a given period whether earned or not. If the operating receipts of a corporation are not sufficient to cover both operating costs and depreciation, the enterprise has suffered an accounting loss. To the extent that its receipts from operations are in excess of its operating costs, the extra receipts are allocated to depreciation to the amount necessary to cover this item, any extra receipts being available for the payment of income taxes, interest, and dividends.<sup>28</sup>

Any funds allocated to depreciation must be considered as a return of previously invested capital and play much the same role in the flow of money as that played by corporate savings. Such funds can be accumulated as a cash balance, invested in securities or invested in new plant, equipment, and inventories. In any case, so far as the flow of money is concerned, they represent investment funds available to finance capital formation just as much as corporate savings out of income. In order to maintain the circuit flow of money, the funds allocated by corporations to depreciation must find an outlet directly or indirectly in new capital formation except as they are used to finance interest or dividend payments in excess of current income.

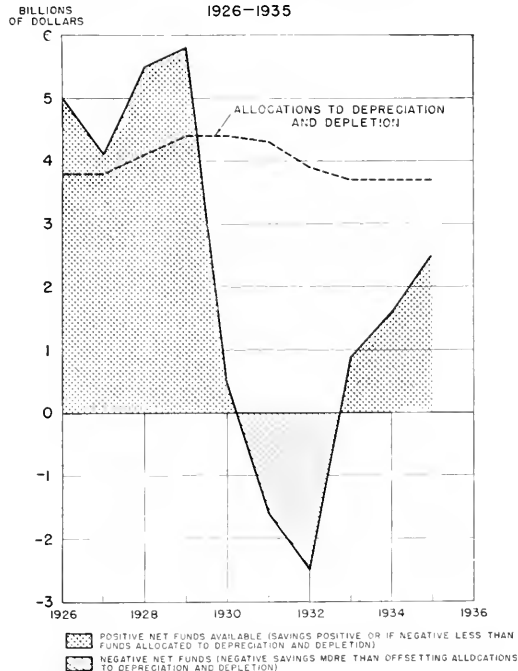
The magnitude of corporate savings and depreciation (including depletion) is indicated in chart IX which gives figures for all corporations from 1926 to 1935. Corporate savings are added to depreciation so that in 1926 the total of such funds available for capital formation amounted to approximately 5.0 billions composed of 1.2 billions of corporate savings and 3.8 billions of funds allocated to depreciation. In years in which corporate savings are negative they constitute a deduction from the depreciation funds which would otherwise have been available for capital formation. In 1931 and 1932, negative savings were so great that they more than cancelled depreciation with the result that nonfinancial corporations as a group appear to have made a net contribution to consumer buying power, either through operating deficits or through interest

and dividends payments in excess of income plus depreciation charges.

As could be expected, depreciation charges remained fairly stable throughout the period, declining somewhat with the decline in capital formation during the depression but on the whole reflecting the relative stability in the productive assets of corporate industry. In contrast to depreciation charges, corporate savings fluctuated widely in response to the depression. At their maximum in 1929 they amounted to 1.4 billions and declined to a low of minus 6.4 billions in 1932, recovering to minus 1.2 billions in 1935.

*Corporate funds derived from security issues.*—In addition to corporate funds derived from operations and available for capital formation, corporations derive a significant volume of funds to finance capital formation from the issuance of new securities. While many data on security issues by corporations are available, no clear segregation of issues into those financing capital formation and those financing the purchase of other securities or of existing properties has been made except in the one year 1929. The total of new corporate issues

CHART IX  
CORPORATE FUNDS DERIVED FROM OPERATIONS  
AVAILABLE FOR CAPITAL FORMATION  
1926-1935



<sup>26</sup> This is usually arrived at by distributing the initial cost of the plant or equipment over its probable useful life. Various methods have been developed for making this allocation.

<sup>27</sup> Or depletion charge where ore, coal or similar reserves are used up.

<sup>28</sup> This is necessarily a very generalized statement of the customary procedure. In practice there are many details, minor exceptions and special cases but they do not effect the basic character of the procedure.

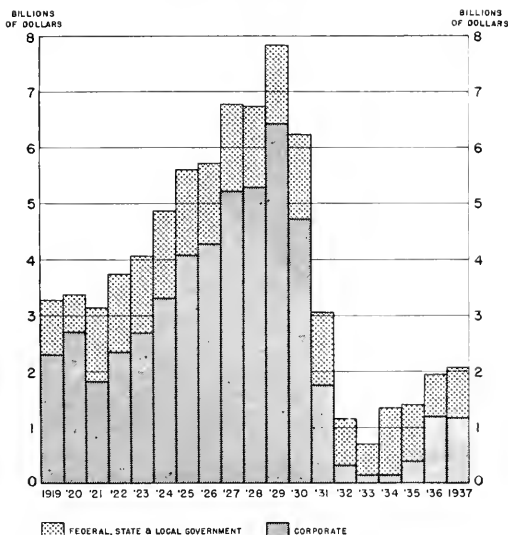
Source: See appendix 18, section 16.

whose proceeds were used primarily to pay for the construction of new plant, the purchase of equipment or addition to inventory amounted to approximately 2 billion dollars in that year.<sup>29</sup> This amount was less than half the sum of corporate savings and allocations to depreciation and depletion in the same year.

A rough indication of the violence of the swings in the issuance of new corporate securities is given in chart X which shows the total of *all* corporate securities except those issued for refunding purposes between 1919 and 1937. These data include both the securities issued to purchase other securities and those providing funds for capital formation. In 1929, the latter item amounted to only 30 percent of the total, indicating the very large volume of new securities issued in that year to purchase other securities. In other years the proportion may not have been so great but in any case the volume of new securities shown in the chart greatly exaggerates the volume of the funds raised to finance new capital formation. However, the chart does show the violent decline in new corporate securities issued after 1929 and the very slight recovery since 1932. It is thus clear that there was a big decline in the funds obtained by corporations both from new security issues and from their own operating activity with which to purchase new capital formation. This is consistent

<sup>29</sup> O. A. Eddy, "Security Issues and Real Investment in 1929," *The Review of Economic Statistics*, May 1937.

CHART X  
NEW SECURITY ISSUES 1919 - 1937



Source: See appendix 18, section 17

with the great depression sensitivity of the capital goods industries already noted.

*Unincorporated business enterprises.*—Unincorporated business enterprises are also in a position to direct funds to some extent between capital formation and current consumption. Such enterprises borrow funds and can use them either to extend consumer credit or to acquire new plant, equipment or inventory. Likewise, many unincorporated enterprises deduct depreciation from their receipts before arriving at their net income.<sup>30</sup> To this extent they present the possibility of directing money flow. But most unincorporated enterprises do not deduct depreciation in arriving at their income while the income of an unincorporated enterprise is usually directly available to its owner and no sharp distinction can be maintained between the savings out of income made by the owner and the savings out of income made by the enterprise. As a result, in sketching the structure of the American economy, there is no significant error involved in regarding all the income of unincorporated enterprises as part of consumer income and disregarding depreciation.

#### Directing of Money Flows by Government Units

The Federal Government has more flexibility in the directives which it can exercise over money flow than any of the other groups mentioned. Neither financial institutions nor business corporations can appropriately spend money directly on final consumption. The bulk of consumers cannot invest money directly in productive activity which they are in a position to carry on. The Federal Government is not only expected to do both of these things but it can, within limits, derive the funds to do either or both from taxation or from borrowing. It can go even further and issue its own money if necessary and can give money away as in the case of direct relief payments. Altogether the flexibility of the Federal directives over money flow is great.

The way in which the Federal Government has contributed to consumer buying power in recent years is indicated in chart XI which shows the net contribution in each year from 1932 to 1937. The peak contribution to buying power in the recovery period was in 1936 when over 4 billions of dollars was paid out by the Federal Government in excess of the amounts collected in taxes, tariffs, and the like. This was followed by a very sharp reduction in the Federal contribution to consumer-buying power in 1937.

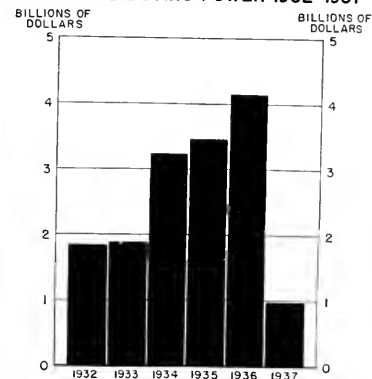
State and local governments are also in a position to direct the flow of money to some extent through taxes and borrowings expended on both current consumption

<sup>30</sup> In the bulk of individual enterprises, particularly in the case of farmers, no depreciation is deducted in arriving at income but rather many capital expenses are charged to current operations. Over a longer period much the same figures for total of income may be obtained.



CHART XI

### NET CONTRIBUTION OF THE FEDERAL GOVERNMENT TO NATIONAL BUYING POWER 1932-1937



SOURCE: DATA USED BY PERMISSION OF THE BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM

and public works. However, they have not the flexibility of the Federal Government nor do they represent the possibility of such a large volume of money flows capable of being subjected to a single basic policy as is the case with Federal funds.

TABLE VI.—*Money expenditures on gross capital formation and on consumption*

[Millions of current dollars]

Year	Expenditures on gross capital formation <sup>1</sup>	Changes in business inventories <sup>2</sup>	Consumer expenditures <sup>3</sup>
1929.....	17,572	+2,414	62,300
1930.....	14,419	-1,128	56,508
1931.....	9,513	-1,375	49,840
1932.....	5,568	-2,461	40,806
1933.....	5,099	-1,129	39,187
1934.....	8,453	-1,524	45,423
1935.....	10,857	+19	47,784

<sup>1</sup> Source: Kuznets, Simon, *Commodity Flow and Capital Formation*, vol. I, p. 484. This item represents expenditure on gross capital formation exclusive of net changes in claims against foreign countries, of all repairs and maintenance and of consumers' movable, durable commodities, but includes net changes in stocks of gold and silver.

<sup>2</sup> Source is same as above.

<sup>3</sup> See appendix 18, section 12.

#### Total Expenditure on Consumption and Capital Formation

All of these money flows operate to stimulate productive activity. Consumer expenditure provides the ultimate basis for financing current production. Savings and allocations to depletion and depreciation provide the basis for financing capital formation whether in the form of fixed assets or additions to inventory. The magnitude of these items from 1929 to 1935 is

indicated in terms of current dollars in table VI and summarized in chart XII. The great depression drop in consumer expenditures and the much greater drop in the expenditures on fixed capital are clear. Expenditures for additions to inventory show a more erratic behavior, partly varying with other forms of expenditures but to a considerable extent varying independently. The variations in these expenditures combined with variations in prices, still to be discussed, largely determine the variations in the level at which resources are used.

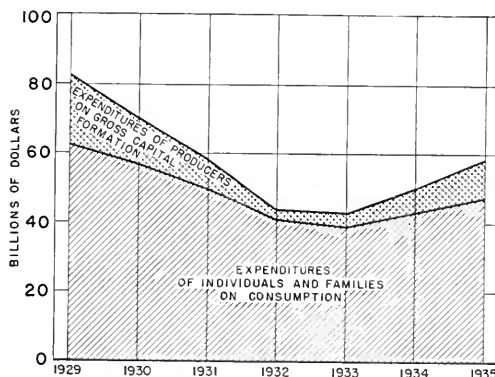
#### Need for Intensive Investigation of Money Flows

In this chapter an attempt has been made to sketch the major money flows overlying production and to point to some of their major characteristics. Neither the collection nor analysis of data has developed to the point where it is possible to block in a clear and balanced picture of the actual money flows as they affect production. Here and there parts of the total picture have been indicated in the preceding pages, but they constitute only fragments. There is great need for intensive work to develop the whole picture. This chapter can serve only to indicate the importance of money flows to the functioning of production and suggest the character of an analysis of money flows which would clarify the structure of production and throw light on the behavior of the American economy.

CHART XII

### MONEY EXPENDITURES ON GROSS CAPITAL FORMATION AND ON CONSUMPTION 1929-1935

BILLIONS OF CURRENT DOLLARS



Source: or Expenditures of producers on gross capital formation, see Simon Kuznets, *Capital Formation and Commodity Flow*, vol. I, table VIII-2, p. 481. For expenditures of individuals and families on consumption, see appendix 18, section 12.

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## CHAPTER VII.—THE ORGANIZATIONAL STRUCTURE

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The first part of this report has outlined the economic basis for production—the wants of American consumers and the resources of the nation available to satisfy these wants. The second part has set forth the more important characteristics of production—its geographical distribution, its functional aspects, and the overlay of financial flows which prick out the pattern of productive activity: It is the purpose of this third part to examine the organizing influences which weld the millions of separate individuals engaged in production into what is essentially a single national economy.

The way in which the millions of workers in the American economy are organized into a functioning whole is far from simple. Even the supplying of a single commodity like gasoline calls for the services of a multitude of separate individuals and agencies. An oil operator brings oil to the surface of the ground; the local government prevents the theft of oil or destruction of equipment; a railroad corporation transports the oil; State and Federal Governments prevent interference with the transport of oil; a refining company maintains an organization of workers and chemical equipment to convert the oil into more useful forms; a retail distributor parcels out the resulting gasoline in small quantities to individuals requiring it; the Federal Government supplies a dependable medium of exchange, which allows the oil operator, the railroad, the refining company, and the retailer to act easily in an organized fashion without being under a single administrative authority, and enforces contracts so that organizing arrangements on specific points can be more safely entered into; finally, government maintains a system of highways and byways which allow an ultimate consumer to combine the gasoline with other resources under his control in satisfying his desire for automobile travel. This joint activity of many individuals contributing to satisfy the demand for a particular product is typical of most production and represents a high degree of organization in the use of resources.

### Basic Continuity

Underlying this organization and essential to its existence is the basic continuity in human wants and human actions as today's activity grows out of and repeats that of yesterday, yet varies from it in greater or less degree. The influence of essential repetition in wants and in the techniques employed to fill wants is so all-pervasive that it is often overlooked, yet without it the existing organization of resources could hardly have arisen or continued to function. The farmer plants wheat, not

because of some contract with an ultimate consumer, but simply because of an assumed continuity in the demand for bread. The business man, in setting up a new cotton mill to make cloth for men's shirts, is impelled to do so very largely by a belief in the continuity in the demand for shirts. The tobacco grower and the cigarette manufacturer both base their actions on the belief that the practice of smoking cigarettes will continue in the immediate future.<sup>1</sup>

Likewise, there is continuity in techniques, for the methods of doing things, in the aggregate, do not change overnight. Constant improvements in techniques are made, but as a rule they are introduced into practice gradually over a period of years. The automobile did not replace the horse in a single season. Continuous-strip rolling mills did not replace older, less efficient mills, in a single year. The process of old rolling mill displacement has been going on for a decade and is not yet complete. Ways of doing things in the immediate future are not going to be essentially different from the ways of the immediate past, though the scientific knowledge of improved methods may exist and though gradually over a period of years great changes may take place.

This continuity in wants and techniques is the most basic factor underlying the organizing of resources. Without a large measure of continuity, chaos would result. Minor breaks in continuity can be taken care of through the price mechanism, through administrative adjustments, through alternation in the canalizing rules, and through shifts in goals accepted. But where continuity breaks down to a significant extent as in the case of flood or fire or panic, loss of foreign markets or war, strike or technical breakdown, the effective organization of resources itself breaks down and often drastic steps have to be taken. Such is usually the case when martial law is declared after a disaster, and the service of protection and the service of supply have to be organized afresh. Such also was the case with the accumulated farm surpluses of the depression, which resulted, in part, from lack of continuity and produced intervention on the part of both political parties. Such also was the intervention during the war, when the railroads became clogged with war supplies and a unified command was necessary to disentangle the traffic snarl. The positive intervention that is necessary when continuity breaks down to a serious extent suggests the importance of this factor to the effective organization of resources.

<sup>1</sup> Evidences of essential continuity in wants and techniques of production are set forth in *Patterns of Resource Use*, National Resources Committee, 1938.

### Organizing Influences

Within the conditions established by continuity in wants and techniques the complex organization of resources is brought about and maintained through four major organizing influences. First, there is the market mechanism—the interaction of individuals or groups buying and selling in the market. A second major organizing influence takes the form of administrative coordination, as the activities of individuals in factory, corporation, or government bureau are directed and interrelated by a common authority. A third influence is the canalizing action of laws, rules, and customs whereby the community shapes and molds and limits and canalizes the actions of many separate individuals into coordinated form without the exercise of direct administrative control. Finally, there is the organizing influence arising from the acceptance of common goals which can bring about coordinated action of separate individuals without the presence of any common authority. In practice, these four organizing influences interplay and reinforce each other, sometimes one and sometimes another being the more significant in a particular situation. For the nation as a whole, it is the combined influence of these four factors which results in the organized use of resources and yields that level of living which characterizes the American economy.

### The Market Mechanism

Of the influences actually bringing about the organization of productive activity, the market mechanism is the most generally recognized. Through price, and through buying and selling in the market, the activities of many separate individuals or enterprises are brought into mesh with each other. In the market, the price of an article can act, after a fashion, as a regulator. If insufficient resources are being employed in making a particular article and oversufficient resources are going into another article, an increase in the price of the first and a fall in the price of the second will stimulate individuals controlling the necessary resources to divert a part of them into the first activity and out of the second. A relative increase in the price of shoes as compared with saddles would tend to guide leather and labor away from use in saddles and into the making of shoes. The proportion of cotton and corn planted on Arkansas farms varies from year to year with changing relationships in the prices of those crops and reflects the operation of the market as an organizing influence.

Sometimes this market mechanism is credited with being the major, or even the sole, organizer of resources. In theory it is possible to show that, under certain conditions, the market mechanism might, by

itself, have sufficient organizing influence to produce effective use of resources. In the case of a great many commodities, however, free markets do not and usually cannot exist, and the market mechanism acts only crudely, slowly, and not too effectively in bringing basic organization into the use of resources.

### Administrative Coordination

Administrative coordination has become of increasing importance as an organizing influence. A century ago, when business enterprises were small and government activity was relatively less important, the market played a major coordinating role. But during the past hundred years great segments in the organization of economic activity have gradually but steadily been shifted from the market place to administrative coordination.

The extent of administrative coordination of economic activity is difficult to realize. Today, hundreds of thousands of workers may be organized in a single great enterprise. Within the enterprise, their activity is coordinated, not through the shifting of prices and supply and demand in the market, but through administrative direction. The largest enterprise, the American Telephone and Telegraph Co., in 1929 was coordinating the activity of over 450,000 persons within its system. Consider the vast difference between this situation and the thousands of separate and independent enterprises such as would have to exist if economic organization in the telephone industry were accomplished primarily through the market place. An effective telephone system would not be possible without a high degree of administrative coordination. In the field of government, likewise, the organization of resources within each government body is to a large extent brought about through administrative coordination. Large-scale enterprise and the extension of the economic role of government together have made administrative coordination a major factor in the organization of resources.

### Canalizing Rules

A third means by which organization is brought about is through canalizing rules whereby the action of individuals is molded and limited without being subject to administrative control. Laws, rules, and regulations, accepted procedures, and binding customs constitute canalizing influences which narrow down the scope of individual action without determining it. They supply the traffic regulations for the ceaseless interplay of human activities. If effective, they contribute to the organization of resources by limiting action which will disrupt or impede effective use and by facilitating the flow of action into constructive channels.

### Accepted Goals

Finally, the acceptance of common goals is, of itself, an organizing influence. A number of people, having accepted a common goal, may be able to act independently and without communication, yet their activities may be to a greater or less extent coordinated by the logic of their accepted goal. The acceptance of a specific goal by the management of an enterprise, as a contract to fill a big order, for example, can spur the individuals in the management to independent though coordinated action, as each, knowing the meaning of the big order in terms of the functions for which he is responsible, acts to carry out his share in the undertaking even before he is given specific instructions.

### The Complex Play of Organizing Influences

These four organizing influences—the market mechanism, administration, canalizing rules, and accepted goals—all combine to give that complex organization of resources, without which daily living as we know it would not be possible. The major organizational problem involved in seeking more effective use of resources is, therefore, to discover the appropriate role to be played by each of these organizing influences. How much can be left to continuity and the inertia of continuity? How far can reliance be placed on the organizing influence of accepted goals? How much reliance can be placed on the market mechanism? How much coordination can be supplied through canalizing rules? At what points can administration provide more effective organization?

The role which each influence plays at different times and at different places will vary; but hardly any significant event occurs without some element of organization being contributed by each of these four influences. While each can be discussed separately, their actual operation in the American economy is so closely interrelated that their separate roles cannot be easily disentangled. The market mechanism would not be an effective influence for organizing the activity of separate economic units on a large scale if it were not for the existence of canalizing rules, whether these rules are codified into law as in the case of the enforcement of contracts, are formal but nonlegal rules such as the trading rules of the wheat pit and the stock exchange, are informal rules such as the "one-price" rule accepted by buyer and seller alike in most American retail stores in which there is no bargaining with customers,<sup>2</sup>

<sup>2</sup> The extent to which this informal "one-price" rule contributes to the organization of economic activity is difficult to realize until comparison is made with the operations of an oriental bazaar where the prices of even minor items are the subject of time-consuming haggling and bargaining. A modern department store could not survive if each sales clerk had to bargain with each customer on the price of each article purchased. Nor could it survive if each customer spent several minutes trying to get a penny reduction in the price of a spool of thread. Only by the acceptance by both buyer and seller of the informal rule of "one-price—no bargaining" can efficiency in retailing be maintained.

or take the form of the custom of accepting money in exchange for goods. Neither could it function effectively in the absence of an accepted goal, namely, the goal of transacting business.

Administration alone is equally incapable of organizing resources on the scale of the whole American economy. Even in the case of the largest administrative units of government and of business, some of the burden of organizing resources is carried by the market as workers are hired, raw materials purchased, and goods sold, while, without the organizing influences of accepted goals, the minute detail in administrative direction which would be required would make large administrative units impossible.<sup>3</sup>

Though these four different organizing influences are not in practice independent of each other, it is possible to speak of particular situations as dominated by one or another of the four factors. Thus, it is usually appropriate to refer to the activity carried on within a particular factory or government bureau as organized administratively. The administrative influence dominates activity even though a supplementing role is played by the other three influences. If, in a particular community, practically all activity is carried on by one-man enterprises and the products are swapped through the market, it would be appropriate to say that the activity was organized primarily by the market, even though other organizing influences were present. The political field sometimes gives an example of organized activity in which the acceptance of a common goal, the election of a particular candidate nominated by the party, is the dominant organizing influence. National unity in time of war or depression is another example of the coordinating influence of an accepted goal. Obvious examples of situations in which canalizing rules play dominant roles are city zoning and the regulation of traffic.

For the American economy as a whole it is not possible to say that any one of these organizing influences is the dominant one. Each appears to play a significant role. The remainder of this chapter will be devoted to an examination of the extent to which each organizing influence contributes to the organized use of resources. Since the market consists of transactions between administrative units within which coordination is primarily administrative, the first of the organizing influences to be considered will be administration. The role of the market will then be discussed, and, finally, the roles of canalizing rules and accepted goals.

<sup>3</sup> The reliance which administrative units place on the acceptance of common goals can be appreciated by considering what would happen in a big corporate enterprise if subordinates did nothing during working hours except those things which they were specifically told to do by the president of the corporation, either directly or through his subordinates. In such a situation the president could leave no decision to subordinates.

### Extent of Administrative Coordination

A rough indication of the extent of administration in the American economy can be obtained by examining the size of economic units in different segments of the economy. For this purpose the significant economic unit would be the administrative unit and would include all the productive activity under a single administrative control. The separate producing units would include the independent farm enterprise, the private business or professional enterprise, the corporate enterprise including legally controlled subsidiaries as part of the parent enterprise, the Federal Government and each State and local government, independent universities and independent church units. On this basis there must have been in 1937 between 10 and 12 million economic units producing commodities or rendering services and engaging the activity of approximately 48,000,000 persons either part or full time. Of these, approximately 6.8 million were farm units, nearly 20,000 were government units, and 1.7 million were business units reporting to the Social Security Board or to the Interstate Commerce Commission. The remainder were for the most part service and professional units and very small business units. A crude indication of the relative importance of producing units of different sizes is given in table I. This table tends to minimize the importance of the large enterprises because it treats subsidiaries of a corporation as though they were independent units, but until compilations for consolidated enterprises have been made, it does serve as a rough guide to the importance of producing units of different sizes.

TABLE I.—Distribution of producing units and their employment,<sup>1</sup> by number employed, 1937

[Treating subsidiaries of a corporation as independent unit.]

Number employed	Number of producing units	Percent of total employed
1-5.....	9,368,000-10,868,000	30-35
6-250.....	696,964	28-33
200-999.....	11,762	6-12
1,000-9,999.....	3,549	12-16
10,000 and over.....	246	11-11
Total.....	10,000,000-12,000,000	100

Source: See appendix 18, section 18.

<sup>1</sup> Rounded figures.

NOTE.—The bulk of the data on number employed and employer units, excluding agriculture, are derived from Social Security Board data on employer returns. Since the returns of subsidiaries of a parent corporation are not consolidated in the Social Security Board data, the economic units and the number employed in the class, 10,000 and over, are seriously understated, with a corresponding overstatement of these in the classes under 10,000. For example, General Motors Corporation is represented as an economic unit 54 or more times. It has not been possible to correct for this lack of consolidation.

It indicates that over a third of the manpower engaged in production in 1937 was attached to administrative units of 300 persons or more, while approximately one-eighth was employed in administrative units of 10,000 persons or more. These figures are very rough approximations, but they do indicate the extensive role which

is played by administrative units in the organization of resources.

It would be desirable to present a similar analysis using capital assets employed rather than manpower as a measure of size, but data for this analysis are not available. There is, however, considerable evidence that on the whole there is more capital employed per worker in the large administrative units than in the small units, with the possible exception of the farm. As a result the administrative units employing 300 or more persons would be employing more than a third of the capital assets of all producing units.

### Major Administrative Units

Some indication of the extent of administrative coordination in particular segments of economic activity can be obtained by listing the largest administrative units in the country and examining the scope of their activities. In table II an attempt has been made to list the 200 largest nonfinancial corporations, the 50 largest financial corporations, and the 20 largest government units in 1935. In the case of the corporations, size has been measured in terms of the assets controlled directly or through subsidiaries, while the size of the government units listed has been measured by the number of persons employed.<sup>4</sup> Various other measures of size could be employed such as contribution to national income or in the case of business enterprises, the volume of sales or value added by manufacture. Different measures of size would give some differences in the specific list of units included as largest but a large proportion of the units listed in table II, except perhaps the financial companies, would be included among the largest corporations on almost any reasonable basis of measuring size. Data on the number of employees of many of the largest companies are published in *Moody's Manuals* and are also included in the table, even though the data for the different companies are not directly comparable, sometimes including employment by subsidiaries as well as employment in foreign countries and sometimes excluding one or both of these items. It is probable that there are some big administrative units not included in the above list, because no public data on them were available. However this list includes most of the major administrative units in the American economy.

<sup>4</sup> The method of arriving at the 200 largest nonfinancial corporations in 1935 is set forth in detail in appendix 10. In the case of each of 185 of the companies, the figure given for total assets is a consolidated figure published in *Moody's Manual* (except that where depreciation and depletion were included in total liabilities these were deducted from total assets), and represents the total assets less depreciation and depletion of the parent company named and subsidiaries which it has chosen to consolidate in the report made available to *Moody's Investment Service*. In the case of 15 companies no such figure was available, and an estimate of total consolidated assets, less depletion and depreciation was made by methods indicated in the appendix.

In the case of the 50 largest financial corporations, the assets reported above are obtained directly from *Moody's Manuals*.

The employment figures for the 20 largest government units are derived from sources indicated in appendix 18, section 17.

TABLE II.—Largest administrative units

(200 largest nonfinancial corporations, 50 largest financial corporations, and 20 largest governmental unit )

	Assets, 1935 (millions of dollars)	Number employed, 1935 (thousands)
<b>INDUSTRIALS</b>		
Standard Oil Co. (New Jersey).....	1,894.9	50
United States Steel Corporation.....	1,822.4	113
General Motors Corporation (estimated).....	1,491.9	212
Secony-Vacuum Oil Co., Inc.....	789.7	55
Standard Oil Co. (Indiana).....	693.5	35
Ford Motor Co.....	681.6	.....
Bethlehem Steel Corporation.....	673.1	51
Alacoids Copper Mining Co.....	581.5	15
E. I. du Pont de Nemours & Co.....	561.1	41
Standard Oil Co. of California.....	579.5	18
The Texas Corporation.....	474.8	.....
Gulf Oil Corporation.....	430.2	.....
General Electric Co.....	398.1	56
International Harvester Co.....	365.2	46
Shell Union Oil Corporation.....	358.1	29
Consolidated Oil Corporation.....	331.1	25
(The Koppers Co. (estimated).....)	1,331.0	.....
Kennecott Copper Corporation.....	323.6	7
Swift & Co.....	321.4	60
Armour & Co. (Illinois).....	317.1	59
Republic Steel Corporation.....	297.5	47
Union Carbide & Carbon Corporation.....	271.1	.....
The American Tobacco Co.....	264.2	10
Pullman Incorporated.....	258.6	27
Albet Chemical & Dye Corporation.....	252.5	.....
Sears, Roebuck & Co.....	234.0	46
Aluminum Company of America.....	223.0	18
American Can Co.....	209.1	.....
Youngstown Sheet & Tube Co.....	207.5	17
Westinghouse Electric & Manufacturing Co.....	194.5	37
Chrysler Corporation.....	193.5	65
F. W. Woolworth Co.....	192.3	39
The Goodyear Tire & Rubber Co.....	192.3	18
National Dairy Products Corporation.....	192.0	35
The Great Atlantic & Pacific Tea Co. of America.....	189.2	90
Phelps Dodge Corporation.....	185.1	87
Jones & Laughlin Steel Corporation.....	183.0	49
United Fruit Co.....	184.9	24
Tide Water Associated Oil Co.....	182.8	11
National Steel Corporation.....	180.5	.....
Singer Manufacturing Co.....	173.8	8
Phillips Petroleum Co.....	174.5	20
American Smelting & Refining Co.....	171.7	26
Liggett & Myers Tobacco Co.....	170.5	20
Montgomery Ward & Co., Inc.....	169.7	31
Warner Bros. Pictures, Inc.....	168.5	12
Eastman Kodak Co.....	168.3	29
The Atlantic Refining Co.....	163.0	.....
United States Rubber Co.....	159.3	46
American Radiator & Standard Sanitary Corporation.....	159.1	26
The Pure Oil Co.....	157.9	10
R. J. Reynolds Tobacco Co.....	157.2	15
Union Oil Company of California.....	151.7	8
Glen Alden Coal Co.....	151.4	10
Pittsburgh Coal Co.....	142.2	22
Ohio Oil Co.....	139.7	6
The Firestone Tire & Rubber Co.....	139.3	2
Loew's Incorporated.....	128.6	.....
Hearst Consolidated Publishers, Inc.....	128.6	.....
The Procter & Gamble Co.....	127.1	10
National Biscuit Co.....	124.5	18
The B. F. Goodrich Co.....	124.0	10
The American Rolling Mill Co.....	123.0	15
The Borden Co.....	120.1	30
Paramount Pictures, Inc.....	118.9	.....
Corn Products Refining Co.....	118.7	4
S. S. Kresge Co.....	118.5	20
Inland Steel Co.....	118.3	10
The American Sugar Refining Co.....	117.7	10
Wheeling Steel Corporation.....	113.0	18
Pittsburgh Plate Glass Co.....	109.7	14
Crucible Steel Co. of America.....	108.1	.....
Sun Oil Co.....	107.1	12
National Lead Co.....	104.0	6
Radio Corporation of America.....	102.5	23
Crown Zellerbach Corporation.....	101.3	30
International Shoe Co.....	83.2	.....
The Lehigh Coal & Navigation Co.....	82.0	.....
Gimbel Bros., Inc.....	79.9	13
Deere & Co.....	79.1	15
Wilson & Co., Inc.....	79.2	18
Chmax Molybdenum Co.....	79.1	.....
Minnesota & Ontario Paper Co.....	78.2	.....
The Cudahy Packing Co.....	76.4	.....
Brown Co.....	76.4	.....
J. C. Penney Co.....	74.4	.....
St. Regis Paper Co.....	73.7	.....
Marshall Field & Co.....	67.0	.....
United Shoe Machinery Corporation.....	66.4	.....
General American Transportation Corporation.....	66.3	.....
Crane Co.....	65.2	.....
Continental Can Co., Inc.....	64.6	.....
Philadelphia & Reading Coal & Iron Corporation.....	63.0	.....
Continental Oil Co.....	61.7	.....
American Car & Foundry Co.....	61.2	.....
R. H. Macy & Co., Inc.....	60.5	.....

Estimated on the basis indicated in table 1, appendix III.

TABLE II.—Largest administrative units—Continued

	Assets, 1935 (millions of dollars)	Number employed, 1935 (thousands)
<b>INDUSTRIALS—continued</b>		
Allis-Chalmers Manufacturing Co.....	73.2	.....
U. S. Smelting, Refining & Mining Co.....	73.0	.....
Columbia Oil & Gasoline Corporation.....	71.8	.....
McKesson & Robbins, Inc. (Maryland).....	71.4	.....
American Woolen Co.....	71.0	.....
S. H. Kress & Co.....	70.4	.....
The Baldwin Locomotive Works.....	69.7	.....
The Cleveland Cliffs Iron Co.....	69.5	.....
American I. G. Chemical Corporation.....	69.3	.....
General Foods Corporation.....	67.9	.....
Interlake Iron Corporation.....	67.4	.....
<b>PUBLIC UTILITIES</b>		
American Telephone & Telegraph Co.....	3,998.3	270
Consolidated Edison Co. of New York, Inc.....	1,377.0	45
Commonwealth & Southern Corporation.....	1,173.8	.....
Associated Gas & Electric Properties (estimated).....	1,125.4	20
Cities Service Co.....	1,113.2	.....
The North American Co. (estimated).....	1,082.6	.....
The United Gas Improvement Co.....	812.9	.....
American Power & Light Co.....	795.9	.....
International Paper & Power Co.....	771.2	.....
Public Service Corporation of New Jersey.....	694.0	20
Electric Power & Light Corporation.....	651.5	.....
Niagara Hudson Power Corporation.....	648.0	.....
Pacific Gas & Electric Co.....	647.3	10
Standard Gas & Electric Co.....	637.3	.....
Columbia Gas & Electric Corporation.....	584.7	13
Interborough Rapid Transit Co.....	554.8	16
National Power & Light Co.....	546.8	.....
The United Light & Power Co.....	537.2	.....
International Telephone & Telegraph Corporation.....	489.0	60
American Gas & Electric Co.....	417.7	9
Middle West Corporation (estimated).....	400.0	.....
American Water Works & Electric Co.....	396.7	9
Commonwealth Edison Co.....	376.4	9
Stone & Webster, Inc.....	371.7	.....
Utilities Power & Light Corporation.....	367.2	.....
Southern California Edison Co., Ltd.....	350.2	47
Western Union Telegraph Co.....	341.6	4
The Detroit Edison Co.....	327.2	6
Midland United Co. (estimated).....	320.0	.....
Brooklyn-Manhattan Transit Corporation.....	300.4	.....
Public Service Company of Northern Illinois.....	226.1	.....
Duke Power Co.....	213.6	.....
The Peoples Gas Light & Coke Co.....	211.4	.....
Pacific Lighting Corporation.....	209.0	3
The Edison Electric Illuminating Co. of Boston.....	181.8	.....
Federal Water Service Corporation.....	176.7	.....
Consolidated Gas Electric Light & Power Co. of Baltimore.....	160.1	5
Central Public Utility Corporation.....	151.6	.....
Lone Star Gas Corporation.....	131.4	4
Long Island Lighting Co.....	127.6	.....
Hudson & Manhattan Railroad Co.....	125.5	2
The Brooklyn Union Gas Co.....	121.8	5
Chicago Railways Co.....	112.0	.....
Boston Elevated Railway Co.....	110.6	6
Third Avenue Railway Co. (estimated).....	110.2	.....
Portland Electric Power Co.....	95.0	.....
Community Water Service Co.....	84.5	.....
Jersey Central Power & Light Co.....	80.1	.....
Associated Telephone Utilities Co.....	79.4	.....
Philadelphia Rapid Transit Co.....	73.0	.....
St. Louis Public Service Co.....	72.8	.....
National Fuel Gas Co.....	72.4	.....
The Baltimore Transit Co.....	67.7	.....
Natural Gas Pipeline Co. of America.....	67.3	.....
<b>RAILROADS</b>		
The Pennsylvania R. R. Co. (estimated).....	12,863.0	109
The New York Central R. R. Co. (estimated).....	12,356.0	95
Allegany Corporation (estimated).....	11,739.0	.....
Southern Pacific Co.....	11,677.7	37
The Great Northern Ry. Co. (estimated).....	11,152.1	10
Northern Pacific Ry. Co. (estimated).....	11,131.2	17
Baltimore & Ohio R. R. Co.....	11,118.3	35
The Atchafalaya, Topeka & Santa Fe Ry. Co.....	1,080.6	42
Union Pacific R. R. Co.....	1,069.6	30
Atlantic Coast Line R. R. Co. (estimated).....	1,786.5	13
Chicago, Milwaukee, St. Paul & Pacific R. R. Co.....	699.5	39
The Illinois Central R. R. Co.....	656.8	29
Missouri Pacific R. R. Co.....	617.3	23
Chicago & Northwestern Ry. Co.....	598.2	26
Southern Railway Co.....	587.1	25
The New York, New Haven, & Hartford R. R. Co.....	553.9	20
Reading Co. (estimated).....	1,445.3	8
Chicago, Rock Island & Pacific Ry. Co.....	481.2	21
Norfolk & Western Ry. Co.....	467.9	20
St. Louis-San Francisco Railway Co.....	417.9	13
Wabash Railway Co.....	315.6	10
Boston & Maine R. R. Co.....	295.4	12
Seaboard Air Line Ry. Co.....	272.1	12
Missouri-Kansas-Texas R. R. Co.....	251.6	17
The Delaware & Hudson Co.....	235.8	16
The Denver & Rio Grande Western R. R. Co.....	233.1	6
Lehigh Valley Railroad Co.....	217.0	13
The Western Pacific R. R. Corporation (estimated).....	1166.8	3
The Delaware, Lackawanna & Western R. R. Co.....	176.4	15

TABLE II.—Largest administrative units—Continued

	Assets, 1935 (millions of dollars)	Number employed, 1935 (thousands)
<b>RAILROADS—continued</b>		
Western Maryland Ry. Co.	168.1	4
The Virginia Ry. Co.	153.4	2
Chicago Great Western R. R. Co.	141.3	4
Kansas City Southern Ry. Co.	131.3	3
Florida East Coast Ry. Co.	123.2	2
Chicago Union Station	91.4	—
Chicago & Western Indiana R. R. Co.	88.9	—
Chicago & Eastern Illinois Ry. Co.	88.2	—
Terminal Railroad Association of St. Louis	177.0	—
Minneapolis & St. Louis R. R. Co.	72.0	—
<b>BANKS</b>		
Chase National Bank	2,350.5	—
National City Bank	1,880.7	—
Guaranty Trust Co.	1,847.4	—
Bank of America National Trust & Savings Association	1,277.4	5.7
Continental Illinois National Bank & Trust Co.	1,141.1	—
Bankers Trust Co.	1,091.7	—
First National Bank (Chicago)	925.4	—
Central Hanover Bank & Trust Co.	914.8	—
First National Bank (Boston)	721.6	—
Irving Trust Co.	721.0	—
Manufacturers Trust Co.	673.0	—
Chemical Bank & Trust Co.	625.2	—
Security First National Bank	591.0	—
First National Bank (New York)	584.2	—
Bank of the Manhattan Co.	548.3	—
J. P. Morgan & Company, Drexel & Co.	537.9	—
Philadelphia National Bank	432.8	—
New York Trust Co.	419.7	—
National Bank of Detroit	395.9	—
Cleveland Trust Co.	337.7	—
Mellon National Bank	337.6	—
Union Trust Co.	334.5	—
Northern Trust Co.	320.7	—
Corn Exchange Bank Trust Co.	271.8	—
American Trust Co.	317.4	—
Wells Fargo Bank & Trust Co.	271.8	—
First National Bank (St. Louis)	248.6	—
Pennsylvania Company for Insurance, etc.	235.5	—
Anglo-California National Bank	235.3	—
Harris Trust & Savings Bank	214.3	—
	207.6	—
<b>OTHER FINANCIALS</b>		
Metropolitan Life Insurance Co.	4,234.8	48.5
Prudential Insurance Co.	3,129.5	38.6
New York Life Insurance Co.	2,243.6	—
Equitable Life Insurance Society of the United States	1,816.2	—
Mutual Life Insurance Co. of New York	1,239.0	—
Northwestern Mutual Life Insurance Co.	1,072.0	1.7
Travelers Insurance Co.	787.9	—
John Hancock Mutual Life Insurance Co.	731.5	—
Penn Mutual Life Insurance Co.	690.7	1.5
Mutual Benefit Life Insurance Co.	586.8	1.0
Massachusetts Mutual Life Insurance	532.2	—
Aetna Life Insurance Co.	503.5	—
Marine Midland Corporation	458.3	—
New England Mutual Life Insurance Co.	343.5	—
Union Central Life Insurance Co.	326.8	—
Provident Mutual Life Insurance	298.3	5
Commercial Investment Trust Corporation	287.2	4.2
Wisconsin Bankshares Corporation	276.4	1.2
Connecticut Mutual Life Insurance Co.	268.4	—
Pacific Mutual Life Insurance Co.	215.6	—
<b>GOVERNMENT<sup>1</sup></b>		
United States of America, excluding Post Office	790	—
United States of America, Post Office	240	—
City of New York (including counties)	127	—
New York State	51	—
Pennsylvania State	41	—
Chicago	40	—
Detroit	29	—
Ohio State	25	—
Philadelphia (city and county)	30	—
Illinois State	19	—
Massachusetts State	21	—
California State	20	—
Los Angeles City	25	—
Los Angeles County	14	—
Boston City	18	—
Virginia State	14	—
Baltimore (city and county)	11	—
New Jersey State	14	—
St. Louis (city and county)	13	—
Cleveland	14	—

<sup>1</sup> Estimated on the basis indicated in table I, appendix 10.  
<sup>2</sup> Source: See appendix 18, section 17.

operated over 90 percent of the railroad mileage of the country.<sup>5</sup> In the same year the electric utilities on the list accounted for approximately 80 percent<sup>6</sup> of the electric power production in the United States as well as more than 90 percent of the telephone service, virtually the whole of the telegraph service and most of a large part of the rapid transit facilities of New York, Chicago, Philadelphia, Boston, and Baltimore. The remaining 107 corporations on the list of nonfinancial corporations include 84 corporations primarily manufacturing in character, 10 merchandising corporations, 9 primarily mining, and 4 providing other services or carrying on miscellaneous activities.

The manufacturing companies on the list comprise a much smaller proportion of all manufacturing assets and employment than do the railroads and utilities, though their importance varies greatly from industry to industry. In some industries like steel, petroleum refining, rubber and cigarette manufacturing, the large corporations listed above comprise most of the industry. In other industries, such as cotton textiles and the clothing industries, not a single corporation on the above list is primarily engaged in that industry, though often a large corporation may carry on subordinate activities in such an industry, just as certain of the larger automobile companies make cotton cloth for their own use.

### Industries Characterized by Large Corporations

Some impression of the industries in which the larger corporations constitute a significant proportion of the industry can be obtained by listing the 65 most important industries and indicating both the proportion of the industry's product supplied by the four largest companies, and the number of corporations listed among the 200 largest whose primary activity lies in the particular industry. Such a list is given in table III covering all the manufacturing industries employing over 25,000 persons. Except in the case of the large automobile corporations, which are treated as equally engaged in the automobile industry and the automobile body and parts industry, each of the large corporations has been classed for the purpose of the above list according to its primary activity. Of the 65 industries employing 25,000 persons or more, 24 are represented by at least one of the large companies on the list of 200 nonfinancial corporations. These industries include 67 of the 84 manufacturing corporations in the list, while the primary activity of 17 of the large manufacturing corporations fall in one or another of the industries employing less than 25,000 persons.

<sup>5</sup> Based on data in *Statistics of Railways of the United States, 1935*, Interstate Commerce Commission.

<sup>6</sup> Based on *Moody's Manuals*, "Utilities," 1935.

An examination of the list will indicate the areas of economic activity in which administrative coordination is an important factor. Approximately half of the nonfinancial corporations are railroads or utilities. In 1935 the railroads in the list and their subsidiaries

TABLE III.—*Manufacturing industries and the large corporations*  
 [The Larger Industries and the Number of the 200 Largest Nonfinancial Corporations  
 Primarily Engaged in Each]

Census industry	Number of largest 200 nonfinancial corporations primarily engaged in the industry	Percent of value of products by largest four producers in 1935
<b>Industries employing over 100,000 persons:</b>		
Steel-works and rolling-mill products.....	10	49.3
Meat packing, wholesale.....	4	55.6
Motor vehicles, not including motorcycles.....	3	57.3
Motor-vehicle bodies and motor-vehicle parts.....	3	69.4
Paper.....	3	14.7
Electrical machinery, apparatus, and supplies.....	2	44.4
Roots and shoes, other than rubber.....	1	26.0
Wool and hair manufactures.....	1	24.2
Printing and publishing, newspaper and periodical.....	1	20.3
Bread and other bakery products.....	1	18.2
Machinery n. e. c.....	1	7.0
Lumber and timber products, n. e. c.....	1	4.7
Railroad repair shops, steam.....	1	37.4
Canned and dried fruits and vegetables, etc.....	1	22.7
Cotton manufactures.....	1	8.4
Men's cotton garments.....	1	7.5
Furniture, including store and office fixtures.....	1	5.6
Knit goods.....	1	5.3
Men's, youths' and boys' clothing, n. e. c.....	1	5.1
Printing and publishing, book, music and job.....	1	4.4
Women's, misses and children's apparel, n. e. c.....	1	1.4
<b>Industries Employing 25,000 to 100,000 persons:</b>		
Petroleum refining.....	17	38.2
Rubber tires and inner tubes.....	4	80.9
Chemicals, n. e. c.....	4	37.1
Cigarettes.....	3	89.7
Tin cans and other tinware, n. e. c.....	3	80.8
Agricultural implements.....	2	72.4
Steam and hot-water heating apparatus, etc.....	2	38.7
Glass.....	1	44.9
Gas, manufactured.....	1	37.6
Radio apparatus and phonographs.....	1	28.6
Foundries.....	1	25.2
Drugs and medicines.....	1	23.4
Rayon and allied products.....	1	74.3
Carpets and rugs.....	1	51.1
Refrigerators, etc.....	1	46.1
Ship and boat building, steel and wooden.....	1	44.8
Cigars.....	1	38.5
Nonferrous-metal alloys, and products.....	1	37.8
Hardware, n. e. c.....	1	36.4
Paints, pigments, and varnishes.....	1	32.3
Engines, turbines, water wheels and windmills.....	1	30.7
Flour and other grain mill products.....	1	29.4
Structural and ornamental metalwork.....	1	24.5
Wirework, n. e. c.....	1	23.1
Pulp (wood and other fiber).....	1	22.7
Leather: Tanned, curried and finished.....	1	22.5
Machine-tool accessories.....	1	21.8
Ice, manufactured.....	1	20.7
Clay products (other than pottery).....	1	19.3
Rubber goods, n. e. c.....	1	19.2
Pottery, including porcelain ware.....	1	19.0
Rayon manufactures.....	1	18.5
Stoves and ranges (other than electric).....	1	16.1
Paper goods, n. e. c.....	1	14.2
Boxes, paper, n. e. c.....	1	14.1
Dyeing and finishing cotton, rayon and silk.....	1	13.9
Boxes, wooden, except cigar boxes.....	1	13.9
Machine tools.....	1	13.8
Confectionery.....	1	12.5
Stamped and pressed metal products.....	1	12.0
Liquors, malt.....	1	11.8
Silk manufactures.....	1	11.5
Machine shop.....	1	8.7
Flaming-mill products.....	1	4.6

Source: Based on table II, appendix 7 and table I, appendix 10.

Such a compilation in no way reflects the secondary activities of the larger companies. The big railroad companies operate railroad repair shops, one of the meat packing companies plays a significant role in the canning of fruits and vegetables, and in a large number of other industries, such as rayon, rugs, refrigerators, and boat building, one or more of the large corporations plays a significant role, though the particular industry is not its primary field of activity. In many of the more important industries such as knit goods and clothing, none of the large corporations appear to play a significant role.

While the figures in table III give a clear indication of the importance of the big corporation in different industries, they do not give a clearly defined indication of the extent to which manufacturing as a whole is carried on by large enterprise. To obtain a more precise answer to this question, a special tabulation of 1935 census data has been compiled which brings together data on all the manufacturing activity of each of the largest manufacturing companies and their legally controlled subsidiaries.<sup>7</sup> In such a compilation the mining, service, trade, and other nonmanufacturing activities of the larger companies is excluded, so that the figures apply only to the strictly manufacturing activity of the larger companies. The results of this compilation are given below, indicating the role of the 100 largest manufacturing corporations on the basis of different measures of size.<sup>8</sup>

With size measured by employment:

100 companies employed 20.7 percent of all the manpower engaged in manufacturing;

With size measured by value added by manufacture:

100 companies contributed 24.7 percent of all the value added in manufacturing activity;

With size measured by value of product:

100 companies accounted for 32.4 percent of the value of products reported by all manufacturing plants.

Thus, while a large proportion of the activity in particular manufacturing industries is carried on by very large corporations, the proportion of all manufacturing activity carried on by the very large companies is much smaller than in the railroad and utility fields. The fact that the big manufacturing corporations produce a larger proportion of the total value added by manufacturing than their proportion of the total manpower employed in manufacturing reflects to some extent the larger volume of capital per unit of manpower which they employ compared with the smaller companies. If comparable data were available on the value of the physical plant controlled by the hundred largest companies (size being measured on the basis of the value of physical plant) there is little question that the proportion of such assets held by them would be very much greater than the ratios of 20 percent of manufacturing manpower and 25 percent of value added by manufacture. Very probably, more than a third of the value of the manufacturing plant of the country is operated by the 100 largest manufacturing corporations even though they

<sup>7</sup> Corporations have been classed as subsidiaries where more than 50 percent of the voting power of its stock was held directly or indirectly by another corporation. See appendix 9.

<sup>8</sup> It should be noted that the three different methods of measuring size result in three different lists of the "largest" companies. Most of the companies on any one list are also on the other two, but not all of the smaller "large" companies.



employ only a fifth of the manpower engaged in manufacturing.<sup>9</sup>

When attention is turned to the field of mining, the same diversity of situation is apparent that exists in the field of manufacturing, though much less data are available to indicate the true role of the large administrative units. Large corporations listed above, or their subsidiaries, account for a large proportion of the iron ore and anthracite mined in the United States. They mine a significant part of the other nonferrous metals and extract much of the petroleum produced. But at the present time no real basis exists for determining the proportions of the nation's mineral resources controlled by the larger corporations or the proportion of the manpower engaged in mining which they employ.

In the field of wholesale and retail trade, the large mail-order houses, department stores, and retail chains play a significant though by no means a dominant role. Ten such companies are included in the list of 200 corporations, though together their sales appear to account for less than 8 percent of the total retail sales in the country.

In the field of services three large motion-picture companies play a significant role in that industry but, for the most part, the unregulated services are provided by medium or small enterprises.

The list of 50 largest financial corporations includes 30 banks, 17 life-insurance companies, and 3 investment trusts, each with assets of over 200 million dollars. The 30 banks together hold 34.3 percent of the banking assets of the country outside of the Federal Reserve banks while the 17 life-insurance companies account for over 81.5 percent of the assets of all life-insurance companies. The 3 investment trusts are important in their field. No general comparison between the size of these financial corporations and that of the nonfinancial corporations can be made because the financial companies act primarily as channels through which funds are invested and as a rule neither use a large volume of industrial assets in their operations nor employ a large number of persons. Most of their assets are loans or securities which only duplicate the assets of other corporations or borrowers. The significance of these large financial companies lies not so much in their productive activity as in the controls which they

can exercise over economic policies, a subject to be discussed in a later chapter.

The final field to be considered is that of government. In this field large administrative units also play a significant role. The 20 largest governmental units together employ approximately 46 percent of all the manpower employed in government, including public education but excluding employees on work-relief programs.<sup>10</sup> The largest of these, the Federal Government, employs over a million persons in all its diverse activities, including the 284,000 in the post office, and 327,000 in the Army and Navy. It is by far the largest single administrative agency in the country, a single department, the post office, employing nearly as many persons in 1935 as the largest corporate employer. Some of the State and city governments rank high in size compared with corporate units. There are only a few corporations that employ more workers than the New York City government while State governments, New York, Pennsylvania and Ohio, and the city governments of Chicago, Philadelphia, Detroit, and Los Angeles rank along with the larger corporations in the list of 200.

#### The Fields of Small Enterprise

The analysis of the list of largest administrative units can disclose the types of activities in which large enterprise plays a significant role but can throw little light on the fields in which really small enterprise predominates. Of these, agriculture is by far the most important. In 1935 there were nearly 7 million farm units, less than 42,000 of which involved the gainful activity of more than 5 persons. The 7 million farm units each engaging the activities of only 1 to 5 persons accounted for well over half of the total number of producing units in the country and together they accounted for 97 percent of the persons engaged in agriculture.<sup>11</sup>

The other more important fields of really small enterprise are service, retail trade, and construction. While there are a few lines of service, such as the motion-picture field, in which large or medium enterprises predominate, and education, in which large government units often supply the service, most of the non-utility services are supplied by extremely small enterprises or individuals. In the field of retail trade, in spite of the encroachment of mail-order houses, large department stores, and chain stores, approximately 30 percent of all retail sales in 1935 were made by independent stores each having annual sales of under \$30,000 and for the most part engaging the activities

<sup>9</sup> This conclusion is confirmed by results of the analysis of income-tax returns given in table V-A, appendix II. This analysis indicates that in 1933, 75 corporations whose activity was primarily manufacturing controlled directly or through legally controlled subsidiaries (more than 50 percent voting control) approximately 45.5 percent of the land, buildings, and equipment (after depreciation) which was controlled by all corporations whose activity was primarily manufacturing. This figure requires two adjustments before it can throw light on the concentration of manufacturing assets since (1) all manufacturing is not carried on by corporations, and (2) the Treasury necessarily classifies all assets of a corporation which is primarily a manufacturing company as if all its activities were manufacturing. If the figure of 45.5 percent were adjusted for these two factors it would be reduced somewhat but would be most unlikely to fall below 35 percent.

<sup>10</sup> See table I, appendix 15.

<sup>11</sup> See appendix 18, section 18.

of only one or two people.<sup>12</sup> Similarly, a third of all the construction by private firms in 1935 was carried on by firms which performed less than \$50,000 worth of work apiece.<sup>13</sup>

In other fields of activity there are many separate small units, but the number of persons engaged does not bulk large in relation to the whole national economy. Many small manufacturing or mining enterprises, small utilities, and small government units exist but do not carry on a significant proportion of the total activity in each of these fields, leaving them to be divided mostly between the medium and very large enterprises. Altogether, little more than a third of the nation's economic activity is carried on by producing units engaging the activity of one to five persons. An almost equal proportion was carried on by a few hundred very large administrative units.

#### The 200 Largest Nonfinancial Corporations

The greater part of the activity carried on by large administrative units is carried on by the large business corporations and their subsidiaries. In order to bring out more clearly the role of these large corporate units, a special tabulation of their balance sheets and of certain items from their income statements was made from income-tax returns. The precise procedure followed and the detailed results are given in appendix 11.

In such a tabulation, a major problem was presented by the subsidiaries of the large corporations. The Bureau of Internal Revenue has in recent years published figures in its *Statistics of Income* on the assets and incomes of corporations classified according to size. But in these compilations the subsidiaries of a corporation are treated as though they were independent companies, except when the parent held stock in the subsidiaries representing 95 percent or more of the total voting power, and even then the data on subsidiaries are included with the parent company only if the latter has chosen to file a consolidated balance sheet with the Bureau. The importance of this treatment of subsidiaries as independent companies can be indicated by a single piece of evidence. The published income-tax statistics indicate that in 1933 there were 375 nonfinancial corporations each reporting assets of over 50 million dollars. Yet, in the case of 102 of these companies, *Moody's Manuals* indicate that in 1933 they were subsidiaries of other corporations.<sup>14</sup> Thus, the 375 corporations each with assets over 50 million dollars turn out to be only 273 independent corporations and 102 of their subsidiaries. In addition to these large subsidiaries, the large corporations have

many smaller subsidiaries which they control through majority voting power.

A clear statement of the assets controlled by larger corporations would require that each independent corporation should consolidate into its accounts the assets of all the corporations which it controlled, directly or indirectly through the ownership of stock representing more than 50 percent of the voting power.<sup>15</sup> It is not possible to make such a consolidation from the data filed with the Bureau of Internal Revenue, but some account of subsidiaries can be taken. In the compilations given in the appendix and summarized below, the aim was to obtain figures covering the 200 largest nonfinancial corporations and all of their legally controlled subsidiaries. To this end, each nonfinancial corporation reporting assets of 10 million dollars or more to the Bureau of Internal Revenue in 1933 was checked against *Moody's Manuals* to see if it was a subsidiary of one of the 200 largest independent corporations. Altogether 280 subsidiaries of the 200 largest nonfinancial corporations were found with assets over 10 million dollars. Compilation of the balance sheets and certain income statement items of these 280 subsidiaries and their 200 parents were then made. To the figures were added estimates of the assets and corresponding income statement items for the subsidiaries with assets under 10 million dollars to give estimates for the total assets and activity controlled by the 200 largest corporations. These resulting figures for total assets do not represent consolidated figures but involve a significant amount of duplication since they include both the assets of subsidiaries and the stock held by parents in subsidiaries as well as credit extended to them, just as do the asset figures for all corporations compiled and published by the Bureau of Internal Revenue.<sup>16</sup> Most of this duplication can be eliminated by deducting the item "taxable securities" from the summated assets of the 200 largest corporations and their subsidiaries thus providing a figure which can be compared with the total assets of all nonfinancial corporations less their taxable securities. Such a procedure not only eliminates the security holdings of parents in subsidiaries but also all the asset duplications due to intercorporate holdings of stocks and bonds. It does not, however, eliminate the duplication due to the intercorporate extension of short-time credit. A more basic figure which involves no duplication can be obtained by restricting the compilations to the value of physical assets recorded under

<sup>12</sup> Based on U. S. Department of Commerce, *Census of Business*, "Retail Distribution," vol. I, 1935.

<sup>13</sup> Based on U. S. Department of Commerce, *Census of Business*, "Construction Industry," vol. III, p. 30 1935.

<sup>14</sup> Source: See appendix 11.

<sup>15</sup> Ownership by a subsidiary of part or all of the stock representing a majority of the voting power over another corporation is presumed to be included in the phrase "through ownership of stock," as well as stock owned directly by the parent corporation.

<sup>16</sup> It also includes duplication to the extent that subsidiaries held stock in their parents or extend credit to them, but this item is believed to involve an insignificant proportion of the total assets of the large corporations.

the items "inventories" and "land, buildings and equipment."<sup>17</sup> Such figures represent the tangible wealth controlled by the corporations and are directly comparable to estimates of industrial and national wealth. For some purposes the assets less taxable investments may be more significant, while for still other purposes the physical assets or only the land, buildings and equipment—the instruments of production—are the more significant. Figures for each of these are given in table IV.

TABLE IV.—*Assets and income statement items for 200 largest nonfinancial corporations and their unconsolidated subsidiaries, 1933*

Assets	Millions of dollars
Cash.....	2,579
Inventories.....	3,867
Land, buildings, and equipment <sup>1</sup> .....	59,949
Tax-exempt investments.....	803
Taxable investments.....	17,754
Notes and accounts receivable.....	5,498
Miscellaneous assets.....	5,167
Total assets.....	95,617
Total assets less taxable securities.....	77,863
Total physical assets <sup>2</sup> .....	63,816
Selected income statement items:	
Gross receipts from sales and services.....	21,985
Interest received.....	361
Cash dividends received.....	415
Cash dividends paid.....	1,525
Depreciation and depletion charged.....	1,633
Taxes paid.....	1,043
Interest paid.....	1,628
Compiled net profit or loss.....	533
Income derived from operations.....	1,779

Source: See table II, part 2, appendix II.

<sup>1</sup> Less reserves for depreciation and depletion.

<sup>2</sup> Land, buildings, and equipment (depreciated) and inventory.

NOTE.—Size is measured throughout by amount of gross assets.

The absolute figures for the assets and income items of the 200 largest nonfinancial corporations and their subsidiaries are in themselves significant, as they show the great volume of assets controlled by the relatively small group of corporations. That 200 corporations control over 60 billion dollars worth of physical assets is in itself a striking fact. The real significance of these figures, however, lies in the basis they give for comparing the assets of the large corporations with other asset and wealth items.

The three most important items with which the assets of the 200 largest corporations could be compared are: (1) the assets of all nonfinancial corporations, (2) the total industrial wealth of the nation, and (3) the total national wealth. The figures for all nonfinancial corporations can be derived directly from the income tax statements, the same source as that for the figures on the 200 largest corporations and their subsidiaries, and are directly comparable with them. For national wealth a very crude estimate of the value of all physical

wealth of the country other than personal belongings has been made which gives figures comparable with the figure for land, building, equipment, and inventory held by the largest corporations.

Figures for total industrial wealth have been obtained by summing estimates of the wealth (land, buildings, equipment, and inventory) used by the railroads and other public utilities, by manufacturing and mining enterprises, by wholesale and retail enterprises, by the construction industry, by finance companies exclusive of their holdings of farm and residential real estate, and by the service industries exclusive of public education. The resulting figures for industrial wealth represent the national wealth less agricultural wealth, governmental wealth, and residential housing which together make up more than half of the national total. Presumably some of the wealth used in the service industries should be excluded from the total of industrial wealth, but no adequate basis was found for making such a deduction, so that if anything, the figures for industrial wealth are slightly exaggerated. The figures arrived at for these different categories of assets and wealth (in 1933) are given in table V along with the proportion of each category which is controlled by the 200 largest corporations.<sup>18</sup> Together these 200 largest corporations controlled in 1933 approximately 19 to 21 percent of the national wealth, between 46 and 51 percent of the Nation's industrial wealth, and approximately 60 percent of the physical assets of all nonfinancial corporations.

A break-down of large corporations into major industrial categories is given in table VI. It shows, as has already been indicated, that the bulk of transportation and of other public utility assets is in the hands of the very large corporations and that over 45 percent of the land, buildings, and equipment (depreciated) of manufacturing corporations was held by the 75 largest manufacturing corporations. Since approximately 92 percent of the manufacturing is carried on by corporations, these 75 corporations must have held in the vicinity of 40 percent of the total plant used in manufacturing.<sup>19</sup> The 25 largest nonfinancial corporations not classed by the Bureau of Internal Revenue as transportation, public utility, or manufacturing represent only 17 percent of the land, buildings, and equip-

<sup>18</sup> It should be noted that throughout this section, the figures given are not concerned with the assets *owned* by large corporations but with the assets *controlled*. "Assets controlled" includes both the assets owned by a corporation and the assets owned by its subsidiaries. A corporation has been treated as a subsidiary when a majority of the voting power of its stock is held directly or through subsidiaries by another corporation. Where only working control of a corporation (a large minority interest) is held by another corporation the former has not been treated as a subsidiary of the latter.

<sup>19</sup> An exact figure cannot be given because some of the assets of corporations properly classed as manufacturing corporations are concerned with other activities than manufacturing.

<sup>17</sup> Depreciated.

TABLE V.—*Relation of 200 largest nonfinancial corporations to all nonfinancial corporations, to industrial wealth, and to national wealth, 1933*

	200 largest nonfinancial corporations and subsidiaries	All nonfinancial corporations	Total industrial wealth	Total national wealth	Percent of each category controlled by 200 largest corporations		
					All nonfinancial corporations	Industrial wealth	National wealth
	<i>Billions of dollars</i>	<i>Billions of dollars</i>	<i>Billions of dollars</i>	<i>Billions of dollars</i>			
Total assets, involves some duplication	97.6	167.7			57.0		
Total assets less taxable securities, involves only minor duplication	77.9	142.0			54.8		
Total physical assets, land, buildings, equipment, and inventories, involves no duplication	63.8	107.0	1 125-140	2 300-340	59.6	46-51	19-21
Total instruments of production, land, buildings, and equipment, involves no duplication	59.9	93.4			64.2		
Gross receipts from sales and services	22.0	73.4			29.9		
Interest and dividends paid	3.2	5.0			64.0		
Compelled net profits	3.5	1					

Source: See appendix 11, table 11.

<sup>1</sup> Represents a summation of the wealth used by railroads and other public utilities, by manufacturing and mining enterprises, by wholesale and retail enterprises, by the construction industry, by finance companies exclusive of their holdings of farm and residential real estate, and by service industries exclusive of public education; this is equivalent to total national wealth less agricultural wealth, governmental wealth, and residential housing. Presumably part of the wealth used in the service industries should be excluded from an estimate of industrial wealth but no satisfactory basis for estimating the amount to be excluded could be found. The estimate for the total industrial wealth is likely to err on the side of being too large. See Appendix 18, section 5; the figures are for 1935, and it is assumed that the range would be the same for 1933.

<sup>2</sup> See appendix 18, section 5. Excludes value of personal property; the figures are for 1935, and it is assumed that the range would be the same for 1933.

ment (depreciated) used in these other activities which include mining, trade, construction, and services.

#### Growth in the Relative Importance of the Large Corporations

The relative importance of large corporate units in the American economy appears to have been fairly steadily increasing as a part of the process of shifting from an economy primarily agricultural in character to one predominantly industrial. As recently as 1870, 53.0 <sup>20</sup> percent of the persons gainfully occupied were engaged in agriculture. In 1930 only 21.4 <sup>20</sup> percent were engaged in agriculture. Broadly speaking, industry—consisting primarily of transportation and the public utilities, mining and manufacturing, and wholesale and retail distribution—has in the last century displaced agriculture as the dominant characteristic of the American economy. With this industrialization an increasing proportion of the whole economy has come to be carried on by corporations while large corporations have come to play an increasing role both in relation to all corporations and in relation to the national economy. No figures are available on the increasing importance of corporations in the whole economy, but

the increasing role of large corporations can be indicated.

The changing importance of large corporations to all nonfinancial corporations between 1929 and 1933 is shown in table VII. The figures for the 200 largest corporations in 1929 were derived from income tax returns by essentially the same procedure as that already indicated for 1933, while the intervening years were estimated by methods set forth in appendix 11.<sup>21</sup> For earlier years no such reliable figures exist, but the estimates made by Berle and Means appear to be sufficiently reliable to indicate roughly the magnitude of the change in the relative importance of the larger corporations in relation to all nonfinancial corporations.<sup>22</sup> The figures become successively less reliable as one goes back to the earlier years. The composition of the list of 200 largest in each year changes from year to year as particular corporations decline in relative importance and others take their places, but the turnover is relatively slow. The proportionate holdings

<sup>21</sup> It should be noted that since the figures represent the 200 largest nonfinancial corporations respectively in each successive year, they do not concern a group of corporations which is identical in successive years, but one which changes gradually as particular corporations decline in importance and others take their place among the 200 largest.

<sup>22</sup> *The Modern Corporation and Private Property*, MacMillan Co., 1933. The authors concluded that in 1929, 49.2 percent of the assets of all nonfinancial corporations exclusive of intercorporate security holdings were owned by 200 corporations and their subsidiaries but indicated the crudeness of this estimate by suggesting that the true figures probably lay between 45 and 53 percent. The more exact ratio arrived at on the basis of the income tax returns of the largest corporations and their large subsidiaries indicated that 47.9 percent of the assets exclusive of taxable securities of all nonfinancial corporations were held by 200 corporations or their subsidiaries. The two figures are not exactly comparable because the Berle and Means estimates exclude short-term intercorporate loans as well as taxable securities. However, the closeness of the ratio indicates the approximate accuracy of the Berle and Means figure. Their estimates for the years 1926-29 are arrived at on the same basis and are presumably of the same order of approximate accuracy. The estimates in prior years are recognized as being relatively crude. Because the larger corporations on the whole "watered" their stock to a greater extent than smaller corporations, the Berle and Means figures tend to minimize the growth in the relative importance of the larger corporations.

<sup>20</sup> U. S. Department of Commerce, *Census of Population, 1880*, vol. IV.

TABLE VI.—*Concentration in 4 industrial categories, 1933*<sup>1</sup>

Proportion of corporate assets in 4 industrial categories controlled by largest corporations in these categories	1933	
	Total assets less taxable investments (less depreciation)	Land, buildings, and equipment (less depreciation)
	Percent	Percent
75 largest manufacturing corporations	40.2	45.5
45 largest transportation corporations	91.7	91.6
40 largest public utility corporations	80.4	81.2
25 largest "other" nonfinancial corporations	14.8	17.4

<sup>1</sup> For derivation of this table, see appendix 11.

of the largest corporations increased from approximately one-third of the assets (exclusive of intercorporate securities) of all nonfinancial corporations in 1909 to over 54 percent in 1933.<sup>23</sup> Since there is no reason to believe that a smaller proportion of economic activity was carried on in 1933 by corporations than in 1909, the figures would seem to indicate an increasing proportion of all activity carried on by the 200 nonfinancial corporations which were largest in the successive years. This evidence of corporate growth serves to emphasize the increased role of large administrative units in determining the use which is made of national resources.

It would be highly desirable to have comparable figures on the changing role of large government units, particularly that of the Federal government. Relatively few precise data on this score are available. If adequate estimates could be made as to the proportion of the country's wealth which was owned by the Federal government or its agencies and the proportion of the gainfully employed who were in government service, they would undoubtedly show similar general growth in the relative importance of government, temporarily accelerated by periods of war or other national emergency. That the proportionate role in the national economy of the large administrative units, including both corporate and government, has greatly increased in the last 50 years there can be little doubt. The alteration in the structure of the American economy resulting from the increased importance of administrative coordination will become apparent in subsequent chapters.

#### Determinants of Size of Enterprise

The prevalence of very large administrative units in some segments of the economy and their absence in others raises the question of the forces making for size. Why are some activities dominated by large units and others by small? This is a question that deserves intensive research, both in its technical aspects and its social implications. Here the most that can be done is to indicate certain elements of the problem.

One aspect of the problem of size of administrative unit has to do with the economical size of plant. It is generally agreed that in any concrete situation there is an appropriate size of plant such that a much larger plant would be uneconomically large, and a smaller plant would be uneconomically small. The appropriate size of plant for supplying a particular product will depend on a wide variety of circumstances of which the most important are usually the techniques of production, the techniques of administration, and the size of the available supply of raw materials and labor, and

TABLE VII.—*Proportion of assets of all nonfinancial corporations held by 200 largest nonfinancial corporations, 1929-33*

[Money figures in millions of dollars]

	1929	1930	1931	1932	1933
<b>TOTAL ASSETS <sup>1</sup></b>					
200 largest nonfinancial corporations .....	98,597	107,073	101,672	96,690	95,617
All other nonfinancial corporations .....	100,832	91,258	76,796	77,560	72,104
Total nonfinancial corporations .....	199,429	198,331	178,468	174,250	167,721
Concentration ratio: 200 largest to all nonfinancial corporations (percent) .....	49.4	54.0	57.0	55.5	57.0
<b>TOTAL ASSETS LESS TAXABLE INVESTMENTS <sup>2</sup></b>					
200 largest nonfinancial corporations .....	84,809	91,364	85,169	79,916	77,863
All other nonfinancial corporations .....	92,195	76,846	68,175	65,973	64,125
Total nonfinancial corporations .....	177,004	168,210	153,344	145,889	141,988
Concentration ratio: 200 largest to all nonfinancial corporations (percent) .....	47.9	54.3	55.5	54.8	54.8
<b>LAND, BUILDINGS, AND EQUIPMENT LESS DEPRECIATION AND INVENTORIES</b>					
200 largest nonfinancial corporations .....	63,954	(3)	(3)	(3)	63,816
All other nonfinancial corporations .....	57,989				43,168
Total nonfinancial corporations .....	121,943				106,984
Concentration ratio: 200 largest to all nonfinancial corporations (percent) .....	52.4				59.7
<b>LAND, BUILDINGS, AND EQUIPMENT LESS DEPRECIATION <sup>3</sup></b>					
200 largest nonfinancial corporations .....	58,351	62,709	62,658	60,540	59,949
All other nonfinancial corporations .....	42,278	41,628	36,968	35,404	33,407
Total nonfinancial corporations .....	100,629	104,337	99,626	95,944	93,356
Concentration ratio: 200 largest to all nonfinancial corporations (percent) .....	58.0	60.1	63.3	63.1	64.2

Source: For the method used, see appendix 11.

<sup>1</sup> Involves intercorporate duplication.

<sup>2</sup> Slight intercorporate duplication.

<sup>3</sup> Inventories not available for 1930-32 because of inadequate data for interpolation.

<sup>4</sup> No intercorporate duplication.

the size of the available market for the product. The appropriate size is likely to become larger or smaller with improvements in technique or administration, or with changes in the market. But whatever its size, whether a mammoth rolling mill, standard medium-sized cotton mill, a corner drug store, or a 160-acre farm, it is likely to set a minimum limit to the size of the appropriate administrative unit.<sup>24</sup>

In the case of most of the very large enterprises, however, the administrative unit is not limited to a single plant. Instead, it is likely to embrace a number of plants, perhaps hundreds or even thousands. The General Motors Corporation, The Great Atlantic & Pacific Tea Co., and The National Dairy Corporation are examples of companies operating many separate plants scattered over the entire country. There is much less agreement as to the efficiencies of multiplant administrative units. It is claimed by some that all, or practically all, the technical efficiencies of large scale operations are obtained in the large single plants. Others claim that there are in many instances technical efficiencies as well as operational economies in multiplant operation. It is quite possible that just as there

<sup>23</sup> Changes in the method of reporting to the Bureau of Internal Revenue prevented the carrying of the compilation and estimating beyond 1933 with the small staff of technicians available.

<sup>24</sup> It is, of course, possible to have several quasi-independent administrative units operating the same plant. Thus, a separate department in a department store is sometimes rented to an enterprise which is independent of other departments, or a steel company may contract out the operating of particular blast furnaces. But this is exceptional.

is presumed to be an optimum size of plant, there may be an optimum size of administrative unit, sometimes involving only a single plant and sometimes embracing a multitude of plants. Just what are the factors making for the optimum administrative unit is likewise a question deserving intensive study.

Until the forces making for large as against small enterprises have been intensively studied it will not be possible to say how much the concentration into large administrative units is a product of technical considerations, how much it is a product of the drive to reduce or eliminate market controls, and how far it results from other considerations such as the ability to raise capital or the requirements of mass marketing. For the present discussion of the structure of the American economy, the first consideration is to recognize the extent and scope of administrative coordination in the use of resources. Until the extensive role played by administration in the organization of economic activity is fully recognized, there is danger of overestimating the extent to which coordination is brought about through the market mechanism.

### Extent of Market Coordination

While administration plays the role of coordinating the activities of individuals within economic units, the market functions to coordinate the activities between economic units. As has been noted, it is not the sole influence coordinating the activities of separate economic units, but operates within the framework established by canalizing rules, in conjunction with the greater or less influence of accepted goals, and supplemented by threads of administrative control running between economic units. In conjunction with these other influences, the market interrelates the millions of families and individuals who constitute the ultimate consuming units, the millions of gainfully occupied who constitute the ultimate producers, the millions of investors who in part finance the formation of capital, and the millions of producing units, some large and some small, within which production is carried on.

### Characteristics of Market Coordination

The market contributes to economic organization through two quite different characteristics, money transactions and flexibility of price. Both these characteristics are thoroughly familiar but are so often confused that their difference needs to be emphasized here.

*Coordination through money transactions.*—In the preceding chapter the circuit flows of money have already been discussed. These circuit flows are made up of a series of money transactions which facilitate the organized use of resources. Through these money transactions, manpower and capital funds are made available to producers; raw materials, semifinished products, and

capital goods are transferred from one producer to another, and finished products or services are made available to consumers. These money transactions also provide a system of prices which are stated in terms of a common money medium and which act as a guide to the use of resources, stimulating some uses and repressing others. The organizing role of money transactions is too familiar to justify discussion here.

What is less often recognized is that money transactions can perform at least part of their organizing role regardless of whether prices are flexible or rigid. In the middle ages under the guild system, prices for most guild products were extremely inflexible, some remaining constant for a century at a time. Yet if all prices could be made perfectly rigid for years at a time, this would not prevent money transactions at these rigid prices from playing a role in the organizing of resources. Even if the system of rigid prices bore no close relation to a set of prices which would correspond to effective use of resources, both production and consumption could be expected to adjust to the particular prices. Where the particular prices were too high in relation to a balanced use of resources, consumption would presumably be lower than would be warranted by the available resources, while competition to supply this limited market at a high price might lead to such a large number of producers operating at partial capacity that costs of production would be increased to the point that no one producer was making more than a competitive profit. Gasoline distribution suggests a case of this type of competition which acts to increase costs instead of reducing distribution margins. Conversely, a price too low in relation to effective use of resources might result in insufficient production to supply the demand at the particular price. The deficiency of supply might lead to rationing, or perhaps the extra demand might be discouraged by the necessity of waiting in queues for the chance to buy, as happened on a large scale in Russia in the 1920's.

But neither in the case of too high nor too low prices would the perfect rigidity of prices prevent money transactions from contributing to a major extent to the organizing of economic activity. The market would be playing the same role between enterprises that administration plays within enterprises, directing manpower and materials into different channels and helping transfer materials from one step in production to another. Likewise, it would allocate the products of activity between consuming units, performing the same function that the head of a family performs in apportioning products among the family members. How well it would perform these functions would depend very largely on the price relationships actually existing. One pattern of prices might lead to ineffective or only partially effective use of resources, just as incompetent

management within an administrative unit can lead to wasteful use of resources while another set of prices might lead to more effective use. Thus, whether prices are inflexible or more or less flexible, the market mechanism contributes to the organization of economic activity through money transactions.

*Coordination through price flexibility.*—In addition to money transactions, the market can contribute to the organization of production through price flexibility. This can arise in two ways, first, by price adjustments which alter price relationships in such a way as to make them conform more nearly with price relationships conducive to effective use of resources, and second, by price adjustments which insure an adequate supply of buying power. Both of these will be discussed in detail in the next chapter in connection with the price structure. It is sufficient here to mention them before examining certain types of price formation and the character of the market in different parts of the American economy.

There are two main processes by which prices are arrived at.<sup>25</sup> Prices may be made in the free market as the result of the interaction of a very large number of buyers and sellers or, in a more restricted market prices may be made by administrative decisions influenced to a greater or less extent by market conditions.<sup>26</sup> The price of wheat in the Chicago Wheat Pit and the price of steel shares on the New York Stock Exchange are examples of prices made in a free market. Such prices will be referred to hereafter as market prices. The wholesale prices of automobiles and agricultural implements are set by the respective manufacturers and these result from administrative decision. Such prices will be referred to as administered prices.

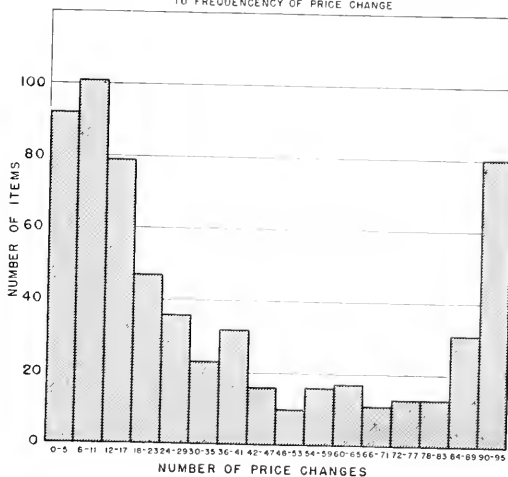
The chief differentiating characteristic of market and administered prices lies in the relation between the prices at which successive transactions are likely to take place. In a free market there is nothing tending to make successive transactions in a particular commodity take place at identical prices. Occasionally there may be a run of identical prices for hundred-share lots of steel

stock but it is highly unlikely that all round-lot transactions in steel stock would take place at the same price for several days at a time.<sup>27</sup> On the other hand, it is the nature of an administered price that it is set for periods of time, and a series of successive transactions take place at that price. Thousands of automobiles of a given make and model may be sold through a period of months at identical wholesale prices and only occasionally will the administered price be altered to meet changes in market conditions, changes in model, or an alteration in costs. Thus, it is the nature of free-market prices to be highly flexible, responding quickly to the short-run ebb and flow of demand and supply, whereas administered prices tend to lack the very short run flexibility of market prices.

Theoretically, an administered price could be so frequently altered, hourly or daily, as to approximate the flexibility of a market price, but in practice administered prices tend to be less flexible, varying from the relatively flexible to the highly inflexible. This is brought out clearly in chart I which shows the items underlying the Bureau of Labor Statistics wholesale price index distributed according to the frequency with which their prices changed in successive months between 1926 and 1932. Some items showed a difference in price in every month over the preceding month, thus changing 95 times in the 96 monthly observations. Other items were the same in price throughout the

<sup>27</sup> Except, of course, if the market were being rigged. In that case it could not be classed as a free market.

CHART I  
ADMINISTERED & MARKET PRICES  
617 ITEMS FROM B. L. S. WHOLESALE PRICE INDEX DISTRIBUTED ACCORDING  
TO FREQUENCY OF PRICE CHANGE



Source: Based on data given in appendix 2, table I.

<sup>25</sup> There are many other ways by which prices are arrived at. Prices, particularly for services, are often customary. They may be arrived at on a basis of auction. Other pricing processes have sometimes developed. However, market prices and administered prices are the most important in the American economy at the present time.

<sup>26</sup> The term "free market" is used here in general to refer to a market in which no one producer or organized group can influence price through expansion or contraction of its production to an extent sufficient to justify it in giving weight to this influence in developing its production policy and in which no one consumer (ultimate or intermediate) can influence price through expanding or contracting its consumption to an extent sufficient to justify it in giving weight to this influence in developing its consumption policies. Stated in technical terms, a free market would be one in which each individual producer was faced with a virtually horizontal demand curve for its product and each individual consumer was faced with a virtually horizontal supply curve. Other economic conditions are also necessary to the existence of a free market such as the absence of government restriction on prices and the absence of temporary speculative control of prices such as is involved in a corner on wheat or an effective stock pool.

period, thus having zero price changes. On the whole the items tend to fall fairly close to one end or the other of the frequency scale. Of the 617 items covered, 111, or 18 percent, changed 84 times or more, while 193, or 31 percent, changed less than 12 times. This bunching at the extremes gives the distribution shown in the chart a more or less U-shaped character which is usually associated with two distinct types of behaviour. For convenience the prices which changed more than 77 times in the 8-year period will be referred to as market-dominated prices, although in the case of several there were short periods when the prices took on the character of an administered price, while there are others which would show themselves to be administered prices if weekly or daily price data were employed. In these cases, even though the prices were administered, the market appeared to dominate the price behaviour. Similarly, prices which averaged less than 23 changes a year will be referred to as administration-dominated prices since their infrequency of price change indicates an appreciable degree of price control in the hands of individual producers. These two groups of prices include 71 percent of the items represented by the chart. The remaining 180 items which showed between 23 and 78 changes are not clearly dominated by either the market or administration. In the next chapter, which deals with the price structure, the difference in the behavior of these groups will be examined.

It is generally recognized that a producing unit acting alone can operate on the basis of administered prices only where it supplies a significant proportion of all the particular market or can narrow down the scope of the market by emphasis on special brands, trade names, and similar devices for differentiating the product of one producer from that of another in the minds of buyers. When the independent producer is so small in relation to the market that he can sell all that he can produce without having a significant effect on prices,<sup>28</sup> then he cannot administer the price of his product. If all the producers supplying a particular product are in this situation, the price is made in the market and cannot be administered by the producers except through collusion on the part of the producers or the interposition of some higher authority.<sup>29</sup> Only where the producer is large in relation to the market can he administer the prices of his product.

The size of a single producer in relation to the market should not be confused with the absolute size of producing units for which data were given in the preceding section. The possible market for the products of a single producer may be Nation-wide or even world-wide as in the case of wheat and automobiles. The

market may be only regional as in the case of cement. It may be local as in the case of bread baking and ice manufacture or extremely local as in the case of the retailing of food where even a few city blocks may be sufficient to delimit for a particular store the circle of its possible customers. This means that the importance of a particular producer in relation to the market must be measured in terms of the proportion of the market which he supplies. The single grocery store in an isolated country town is in a position to dominate the local market. Except for locally grown food products, it must supply the bulk of the community's food. The grocer is in a position to administer his own prices. On the other hand a huge company employing thousands of workers in producing standard cotton goods would be producing a product which has a world market. Such a company would be likely to be supplying only a very significant proportion of the total and would not be in a position to dominate the market even to the extent of administering its own prices.

The markets for particular products or services are seldom sharply defined. Geographically, the market which can be reached from a particular plant is likely to taper off gradually with distance, as transportation costs become greater, or delay in delivery becomes more important. In terms of function, also, products do not fall into sharply defined categories with separate and distinct markets. If products are defined narrowly, the markets for particular products are largely overlapping. Perhaps the market for 36-inch cotton sheeting of a particular quality might be discussed as a definite thing, but actually the market for 36-inch sheeting overlaps that for 54-inch sheeting of the same quality. For many uses one could be substituted for the other. Yet, for some uses they are not adequate substitutes for each other so that their markets are not exactly coterminous. Similarly, sheeting of the same width but of different quality or construction may be interchangeable with each other for some purposes and sufficiently different for other purposes to be inadequate substitutes. The same difficulty arises when markets for broader categories are discussed. Cotton sheeting as a whole overlaps with linen sheeting for some purposes, with silk and rayon sheeting for some purposes, with sheet rubber for still other purposes. Thus, the market which any particular producer is supplying is not a sharply determined market but one that ramifies in different directions with no precise geographical or functional limits.

#### Concentration in Relation to Major Markets

Though markets cannot be sharply delineated, it is possible to obtain a rough indication of the degree of concentration in relation to the market by adopting the industrial or other categories generally employed

<sup>28</sup> I. e., when he, as an independent producer, faces a horizontal demand curve for his product within the range of his capacity to produce.

<sup>29</sup> Prices administered by consuming units are sufficiently infrequent to be disregarded in outlining the structure of the national economy.



and measuring concentration in these terms.<sup>30</sup> This is done in the following sections which take up successively the degree of concentration in each of the major markets—goods, labor, and securities. The results of such measurement can, of course, give only a crude approximation to market concentration, but such a crude picture is of value in outlining the general structure of the American economy.

*Concentration in relation to the market for goods.*—In the market for goods, including both commodities and services, the vast bulk of consumers are unorganized so that there is little concentration on the part of the ultimate buyers of consumer goods. For particular types of consumer goods the effective demand may be limited to a relatively small number of ultimate buyers, and in particular localities consumers may have developed effective cooperatives or collective bargaining associations for particular commodities, but for the bulk of consumers goods the number of potential buyers tends to be large, often ranging into the millions so far as particular producers are concerned.

In contrast to lack of concentration among consumers, a great deal of concentration in relation to the market is evident among producers. For commodity after commodity produced for consumption, the number of separate producers is small so there are only a small number of sellers in relation to the large number of ultimate buyers. Likewise, for many services rendered to consumers, the number of enterprises in a position to supply the particular service is small. This same concentration of production in some fields leads to conditions in which the intermediate buying is concentrated and the selling is unconcentrated. This is particularly true in the case of farm products. Farmers sell the bulk of their cigarette tobacco to a handful of cigarette manufacturers who in turn sell the finished cigarettes to millions of consumers through the retail channels. The bulk of cattle and hogs is sold to a few meat packers, and a major part of the wheat used in this country is sold to a few flour milling companies. In other cases, the concentration of producers leads to concentration of both buying and selling, as when a few steel producers supply most of the heavy steel rails and the bulk of the purchases is made by a small number of railroads. It is primarily the concentration of production in many lines of activity that provides the small number of sellers or buyers which characterize the market for so many goods and limit the operations of the market as an organizing influence. This section will therefore be concerned only with concentration in rela-

tion to the market as it is reflected in the concentration of production.

Government-operated enterprise and the regulated public utilities probably constitute the area of greatest concentration in relation to the market. In the case of the bulk of the services rendered by government units for which specific charges are made, such as postal services, water supply, and other utility services, the government unit is the only agency supplying the particular service to the particular market. Likewise in the supplying of electric power, gas, and local telephone service, relatively few communities are served by more than one utility company supplying each of these services. Local transport is usually supplied by one or a few traction or bus companies and many small taxi units. The railroad transportation service between particular points is usually restricted to one or a very few railroads, though truck and bus service has cut into the market for certain types of transport service. Long-distance communication, other than that through the mails, is mostly divided between the telephone company and two telegraph systems. Thus, in supplying services in most of the government and utility fields, there is a high degree of concentration in relation to the market, and prices are administratively determined either by government or through a regulatory process which involves both government and private business. Only to a negligible extent are the services rendered by government or the utilities supplied in a free market and at prices determined in the market.

In the field of manufactures, concentration in relation to the market runs all the way from a high degree of concentration in the supplying of automobiles, cigarettes, and agricultural implements to the relatively small concentration in the production of cotton textiles, knit goods, and clothing. This variety is shown in chart II, which indicates for each census industry the proportion of the industry's product, measured in value terms, which was produced by the largest four and the largest eight producers in the industry in 1935. The different industries are divided into three groups: First, the 21 big industries, each of which employed 100,000 persons or more in 1935; next, the 44 medium-sized industries, each employing between 25,000 and 100,000 persons in 1935; and, finally, the 211 smaller industries, each of which employed less than 25,000 persons. Within each group the industries are arranged in order of declining concentration as measured by the relative value of the products of the four largest producers.

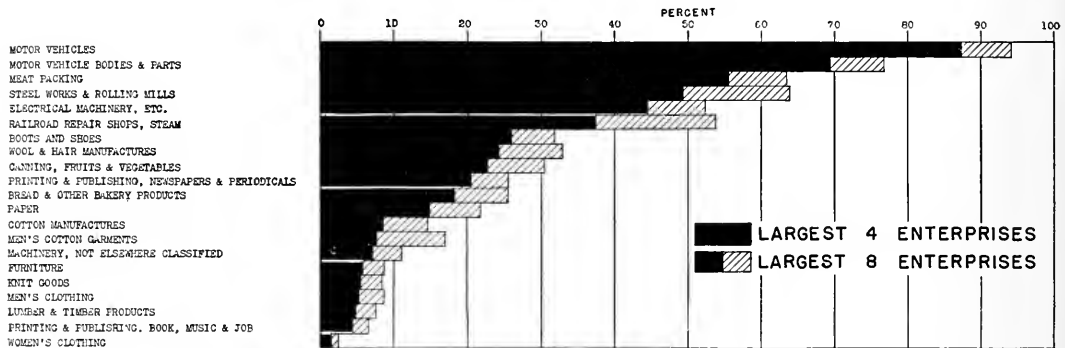
In reading this chart it is important to keep in mind three weaknesses, each of which tends to minimize the actual degree of concentration in relation to the market. First, the Census in grouping individual plants

<sup>30</sup> The term "concentration in relation to the market" is used throughout this chapter to refer to concentration in buying or selling, i. e., a large proportion of the sales of a particular goods made by a small number of sellers or purchased by a small number of buyers.

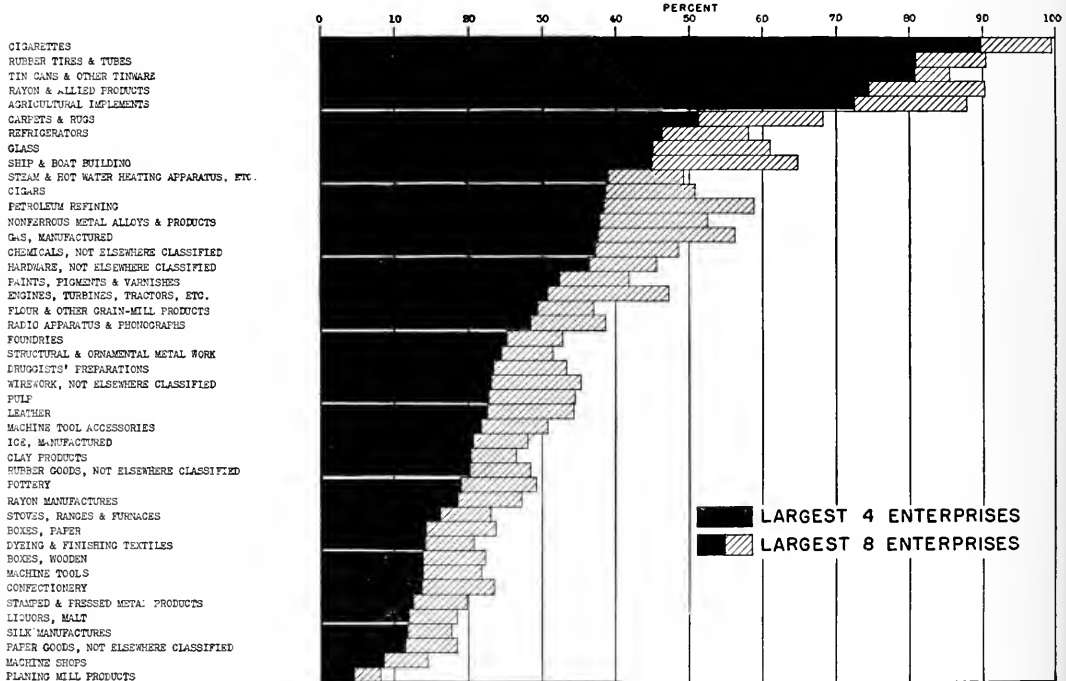
CHART II

# CONCENTRATION, MEASURED BY VALUE OF PRODUCTS, IN MANUFACTURING INDUSTRIES 1935

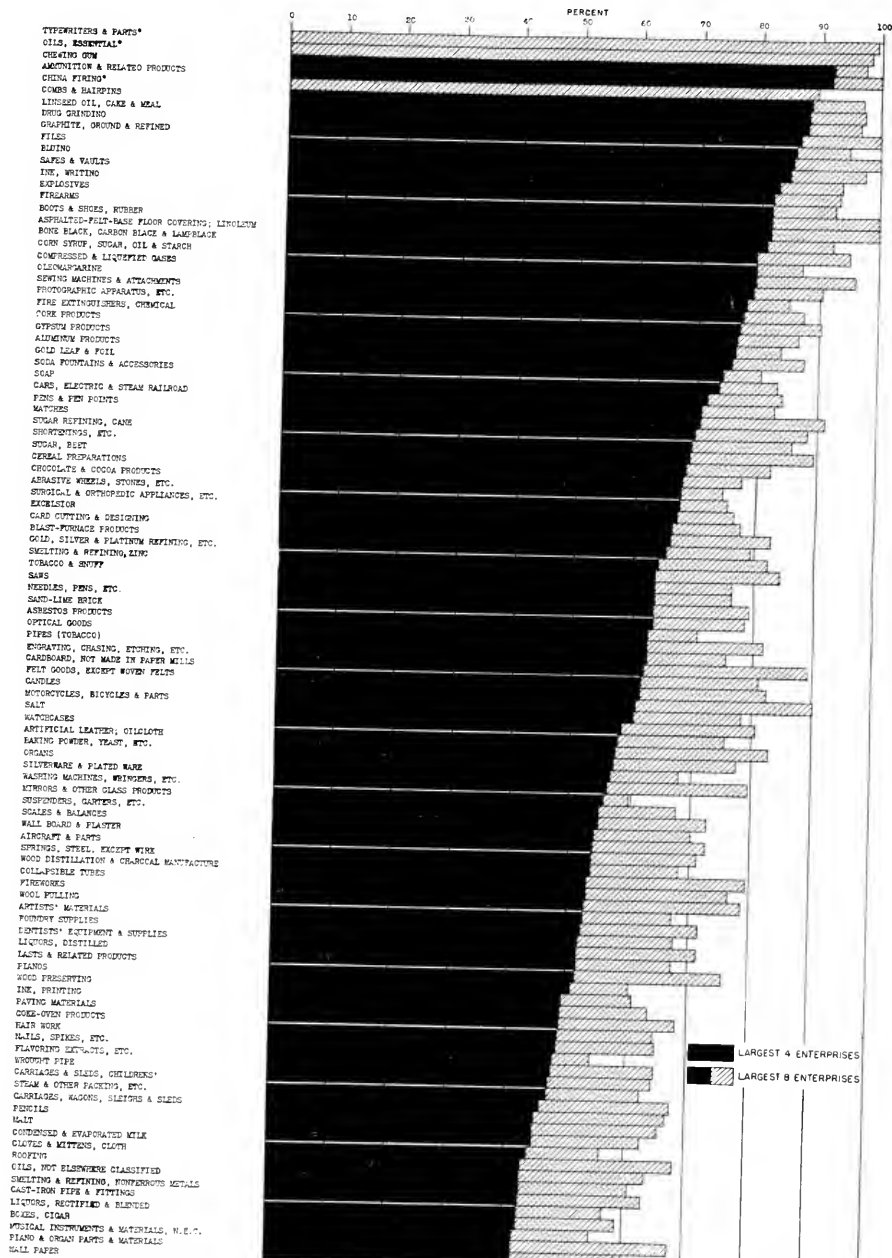
## INDUSTRIES EMPLOYING MORE THAN 100,000 PERSONS



## INDUSTRIES EMPLOYING 25,000 TO 100,000 PERSONS

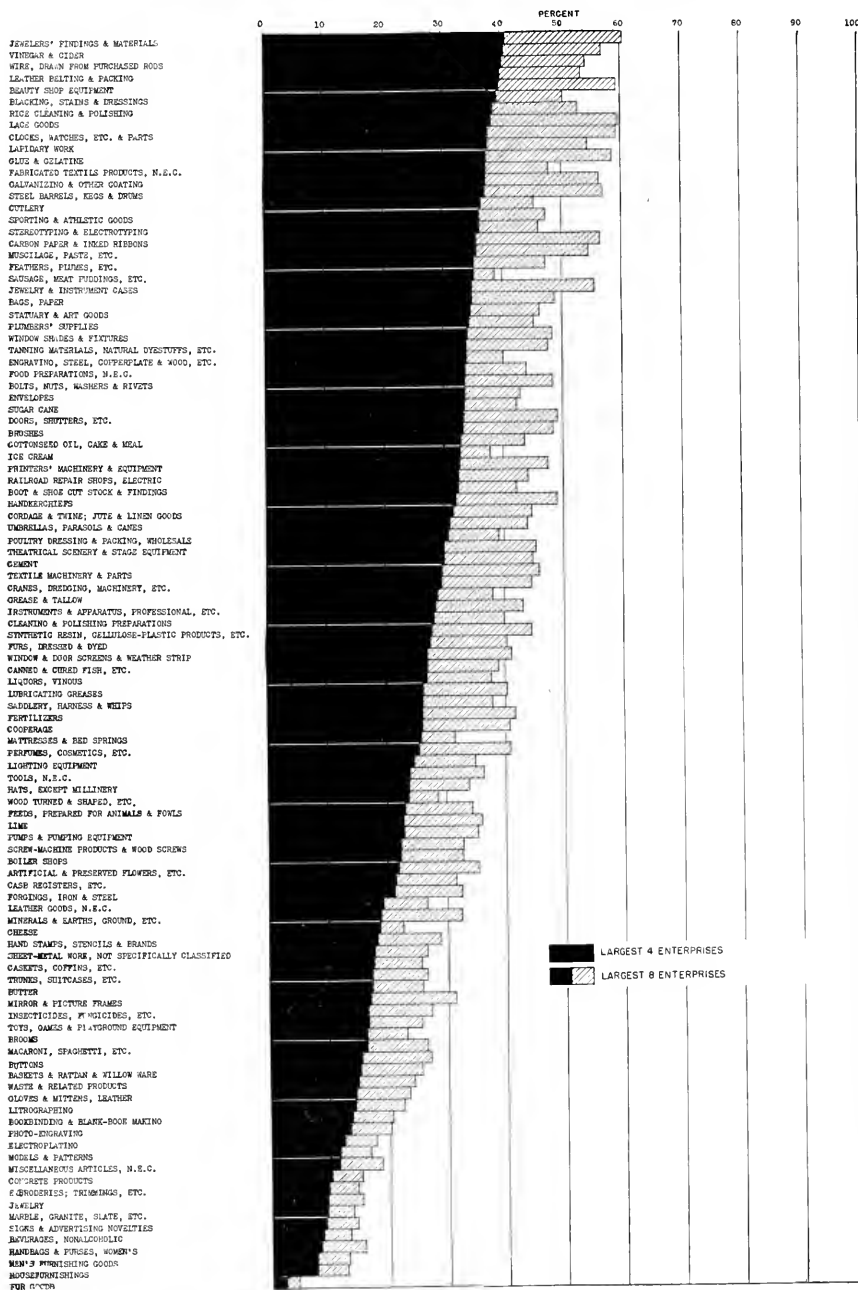


## INDUSTRIES EMPLOYING UNDER 25,000 PERSONS



\* THE DATA FOR THE LARGEST FOUR ENTERPRISES ARE COMBINED WITH THOSE FOR THE LARGEST EIGHT ENTERPRISES IN ORDER TO AVOID APPROXIMATE DISCLOSURES OF INDIVIDUAL DATA

## INDUSTRIES EMPLOYING UNDER 25,000 PERSONS (CONTINUED)



Source: Based upon data given in appendix 7, table I.

has to adopt fairly comprehensive categories. Thus, cotton manufacture includes such diverse activities as the making of surgical gauzes, tire fabrics, belting, sheeting, yarns, and print cloths, while such industries as druggists' preparations, canning of fruit and vegetables, and most of the "not elsewhere classified industries" are congeries of separate industries, each having a more or less independent market. If the manufacture of each major product were taken separately, a very much greater degree of concentration would be shown. When the proportion of surgical gauze produced by the largest four producers of such gauze is taken separately from the largest four making tire fabrics and the largest four making cotton belting, and so on for each item, the concentration shown would presumably be much greater.<sup>31</sup> Except where the bulk of the product of an industry is fairly homogeneous, as in the case of cement, ice, and cigarettes, the census figures tend to minimize the degree of concentration in relation to the market.

Also, because the census figures report national totals, they minimize the concentration in industries not producing for a national market. Even though the bulk of both cement and ice is homogeneous, the market for these products on the west coast does not overlap the Mississippi Valley markets, nor do Atlantic coast cement and ice travel in significant volume to the midwest. Some products, such as bread and manufactured gas, are almost entirely produced for very local consumption. For many industries, like flour milling and cigar manufacture, the market for some producers is purely local and for others it is national. These industries have been classed on the basis of whether the bulk of production was for the local or the national market. The impossibility of completely separating the local from the national market thus tends also to make the data in chart II minimize the concentration in relation to the market which actually exists in the field of manufacturing.

The third element making these data minimize the degree of concentration in relation to the market is the high degree of product differentiation which exists in some industries. If the product of each producer is distinguished from that of the next by characteristics which are important to consumers, such as might arise from superior design or workmanship, patented advantages, or simply through the trade-mark of its producers, the products of separate producers are not homogeneous to the same extent as cotton which is produced by a multitude of separate producers and can be graded and each grade treated as homogeneous for market transactions. The significance of product differentiation will be pointed out in connection with prices.

<sup>31</sup> It would be identical if the same four companies were the largest producers of each item. Only under unusual circumstances could it be lower.

In spite of the fact that the data in chart II greatly minimize the degree of concentration in relation to the market in the field of manufacturing, they do indicate a very important degree of concentration. In approximately a third of the census industries the largest four companies contributed more than half of the value product of the industry, while in 60 percent of the industries the largest four companies contributed more than a third. If similar data were available, not for whole congeries of products but for specific items like electric motors or mens' work shoes, the degree of concentration in relation to the market would presumably be very much greater.

An examination of the chart does not disclose any clearly defined difference in the character of the products of the concentrated and the unconcentrated industries. There is a very slight tendency for the durable-goods industries to be more concentrated than the nondurable. In table VIII, the largest industries are arranged by durability and by concentration. For this group of industries the slightly greater concentration in the durable goods is indicated. The same tendency for durable goods to be more highly concentrated also appears among the medium and small industries. In none of these groups of industries, however, is the tendency very clear and further study may possibly show that the particular result here shown is more or less fortuitous. There is also a tendency for the newer industries to be more concentrated. Automobiles and parts, rubber tires and tubes, cigarettes, rayon, and refrigeration (mostly electric) are all concentrated to the point that 40 percent or more of the value of products in 1935 was produced by four companies.

On the whole the available data points to a significant degree of concentration in the manufacturing field as a

TABLE VIII.—*Large industries arranged by durability and concentration*

Proportion of value of products produced by four largest enterprises	Nondurable	Semidurable	Durable
Over 60 percent	-----	-----	Motor vehicles. Motor vehicles, bodies and parts.
30-60 percent	Meat packing.	-----	Steel works and rolling mills. Electrical machinery. Railroad repair shops.
10-30 percent	Canning fruits and vegetables. Newspaper and periodicals. Bread and bakery products. Paper.	Boots and shoes Wool and hair manufacture.	
0-10 percent	-----	Cotton manufacture Men's cotton garments Knit goods Men's clothing. Books and publishing. Women's clothing.	Machinery N. E. C. Furniture. Lumber and timber products.

Source: Based on appendix 7, table II.

whole. There is sufficient concentration to make the bulk of the prices of manufactured products administered prices, as will be apparent in the discussion of prices. Among the industries employing 25,000 persons or more there was sufficient concentration to allow price administration in most industries.

The field in which the free market is dominant is that of agriculture. For the staple crops, price tends to be made in the market and is outside the control of any independent producer. Corn, wheat, cotton, hogs, and beef cattle, chickens and eggs, all show the free market type of price formation. In the production of these staples there is little concentration in relation to the market. So far as cotton, wheat, and hogs are concerned, the insignificant market position of the largest four and largest eight producers is given in the table below.

TABLE IX.—Concentration in the production of three agricultural products

	Proportion of total by—		Total number of farms producing
	Largest 4 producers	Second largest 4 producers	
	Percent	Percent	
Cotton (acres).....	0.14	0.09	4,850,000
Wheat (bushels).....	.13	.08	1,364,000
Hogs (number).....	.09	.03	3,971,000

Source: Largest producers determined from data on checks of \$10,000 or more issued by the Agricultural Adjustment program to agricultural producers as reported in Senate Document No. 274 (71st Congress, Second Session), 1930; and on production (cooperating) of largest producers and total national production for each product.

In each case the largest 4 producers account for an insignificant fraction of the total production, a small fraction of 1 percent. The marked difference between the conditions under which the prices for these staple agricultural commodities are formed and the conditions of price formation in the bulk of manufacturing activity is emphasized by the fact that there were less than 170,000 separate manufacturing enterprises reporting to the census of manufactures in 1935 and making the whole range of manufactured products. Yet there were nearly five million separate producers of cotton. Only in the nonstaple products of agriculture is the market such that the individual can administer his prices, and even there it is rare. The great bulk of agricultural production is destined for a market which is free so far as control by the individual producer or even the selling cooperative is concerned.

In the field of mining there is very inadequate data as to the concentration in relation to the market. It is well known that the mining of iron ore is concentrated, as is the mining of anthracite coal. Petroleum production and bituminous coal production are on the whole relatively unconcentrated, though in many local situations the latter shows some tendency toward administered prices.<sup>32</sup> There is need for more adequate

<sup>32</sup> Petroleum production has been to a significant degree subject to production control through State action. Petroleum refining is a relatively concentrated industry.

data on concentration in the ownership of mineral resources and their extraction.

Construction is on the whole unconcentrated so far as the producing units are concerned.

The two remaining fields of activity, retail distribution and consumer services, are dominantly rendering services to a local market so that national totals throw little light on concentration in relation to the market. The lack of information on this score is not, however, significant since there is little retail trade that is carried on under free market conditions, and few consumer services provided on a free market basis. For the most part the individual consumer buys most commodities at prices set by the retail distributor or, under the Miller-Tydings Act, by the manufacturer. Consumer services likewise are supplied in large part on the basis of a fixed price schedule. Both are for the most part conducted on the basis of administered prices.

In summary, it can be said that there is such a degree of concentration in relation to the market for the bulk of goods in the American economy that to a major extent the prices of goods are formed on an administered basis rather than on the basis of a free market. Only in the case of agricultural products and certain other products is price formed in a free market. The significance of the extensive role of administered prices will be discussed in the chapter on the price structure.

*Concentration in relation to the market for labor.*—The market for labor is fundamentally different from that for goods. It is concerned primarily with the conditions of productive activity, not with the product of such activity. Both commodities and services relate to the results of economic activity and money paid for them is paid for the specific product or service. In contrast to this, wages and salaries are payments made to induce workers to accept the direction of someone else during working hours.<sup>33</sup> When a worker accepts employment with a particular enterprise he is agreeing to make himself part of the productive organization of the enterprise, to work under the direction of its management, and to leave the product of his activity at the disposal of the enterprise. In return for subjecting himself to this administrative direction, the worker receives a wage or salary which constitutes essentially a ticket on production redeemable in the products of this or other producers. As the chapter on money flows has already indicated, the paying out of these tickets on production,

<sup>33</sup> There are borderline cases which might be classed either as involving payments for labor or payments for services, but in most cases the classification is clear. It depends partly on customary usage but primarily on the degree to which one individual (or organization) acquires administrative authority over another. It is customary to regard the independent architect engaged to design a home as paid for a service, whereas an architect employed by a housing corporation on a salary basis to design homes is customarily regarded as an employee paid for labor. The degree of administrative control which he accepts is presumed to be greater in the latter case while the degree of independence is presumed to be greater in the former case.

and their subsequent redemption, is an essential part of modern industry. Such wage and salary payments represent simply one aspect of the continuing social relationships running from employee to employer and from employer to employee which form the basis of organized activity within administrative units.<sup>34</sup> The market for labor, therefore, cannot be effectively discussed as simply the market for a special type of commodity.

In spite of the fact that labor is not a commodity, the payments to be made to workers for accepting administrative direction are usually agreed on in terms of so much per unit of time worked or per unit of product produced. Wage or salary rates are thus similar in certain respects to the prices paid for commodities, and the processes by which these labor rates are arrived at are in some respects similar to those which lead to price determination in the market for goods. The competition of workers for jobs may result in lower labor rates, or the competition of employers for workers may lift the rates. Yet the similarities are probably less significant than the differences.

Because of the personal relationship involved in employment, it is doubtful if there could be such a thing as a free market for labor. To the wheat farmer it makes little difference who the purchaser of his wheat may be so long as he gets his money. Nor does the wheat purchaser usually care what farmer produced it. Though it usually makes relatively little difference to an enterprise whom it employs so long as technical qualifications are met, it usually makes a great deal of difference to the individual worker for what enterprise he works. The personal character of the transaction prevents the interchangeability which is essential to a free market.

In practice, the bulk of labor rates are administrative or quasi-administrative in character though the conditions surrounding the administration differ widely. There are four more common ways in which the administrative or quasi-administrative rates are established. (1) They may be arrived at through individual bargaining between the employer and employee with the rate maintained constant through a period of time on the basis of oral or written agreements but subject to revision from time to time on the basis of new bargaining. (2) They may be set by administrative action on the part of the employer as in the case of government and of many corporations and businesses. (3) They may be set by administrative action of a labor organization as in the case of some of the building-trade unions. (4) They may be arrived at through collective bargaining between representatives of producers

and workers.<sup>35</sup> In each case the rates arrived at, like the administratively set prices of goods, are usually made in the light of existing market conditions so that they are not unrelated to the market. However, like administered prices of goods, they are not arrived at as the result of the interaction of many buyers and sellers bidding against each other in the market.

The administrative character of labor rates suggests that a considerable degree of concentrating of buying, selling, or of both, must exist. On the side of buyers, that is, among employers, there is a high degree of concentration in many if not most labor markets. This concentration arises from a variety of factors of which some of the more important are (1) the narrow geographical limits of most labor markets; (2) the limits imposed by specialized techniques; (3) the industrial concentration already referred to; and (4) the formal or informal arrangements which so often develop among the more important employers in local communities or particular industries. Each of these contributes to make the number of separate employers competing for the manpower in many particular localities and industries relatively small.

The geographical narrowness of particular labor markets cannot be overemphasized. While there are some fields, such as that of construction and the harvesting of agricultural crops, in which there is a relatively high degree of geographical mobility, and some workers in most communities, particularly the unmarried and those newly seeking work, who are so little tied to the community that they can easily move to a new locality, the bulk of workers in most communities are relatively immobile. They may own a home which would have to be sold at a loss if they were to seek employment in some distant community. They may have established social ties which hold them to the particular community. The lack of familiarity with other communities may act as an impediment to the seeking of work in new territory. This relative immobility of workers is reflected in the stranded populations of the worked-out coal areas of West Virginia and the cut-over timber lands of northern Michigan and in the very wide differences in wage rates in different parts of the country, particularly between the north and south and between rural and urban areas.

The relative immobility does not mean that there is not a constant moving of workers from one region to another, but only that there are sufficient impediments to such movement as to make each locality an almost independent labor market so far as short periods of time are concerned. The working population of a particular community can be somewhat augmented from the im-

<sup>34</sup> The importance given to the problem of maintaining *esprit de corps* in administrative units is significant evidence on this point.

<sup>35</sup> There are many other ways by which wage rates might be arrived at, but the above four seem to be factually the more important.

mediately neighboring communities or can seek work in the surrounding communities, but any major increase or decrease is usually brought about only gradually through a considerable period of time.

Not only is the particular labor market made narrow by the geographical immobility of labor but it is also made narrow by the specialized techniques of industry and the specialized skills which have to be developed to fill particular jobs. Neither the skilled typist nor the skilled cotton spinner is usually equipped to compete with the other for either of their jobs. The mason, the carpenter, and the electrician do not usually compete with each other in the same labor market. To shift from employment as a skilled worker or semiskilled worker in one industry to work involving the corresponding degree of skill in another often requires an extensive period of retraining which limits the quick shifting of skilled and semiskilled workers from industry to industry. This functional immobility is often quite as narrowing an influence on the market for labor as is the geographical immobility and is reflected in the wide differentials in labor rates which often exist between jobs in the same locality and calling for the same level of skill but requiring a different type of training. The national market for labor is thus in reality a series of relatively small markets divided from each other both geographically and by types of skill, but partially linked to each other by the mobility of the relatively footloose individuals in each community and by the very gradual mobility of other parts of the population.

Most labor markets are so narrow that they are dominated on the hiring side by a relatively few enterprises. There are many towns in which a single factory or mine is the main source of jobs. In other towns there may be only a handful of separate enterprises which absorb a major proportion of the workers, giving a significant degree of concentration on the hiring side which is augmented if the different enterprises do not compete for the same skills. Even in the larger cities, there are many skills the market for which is dominated by a few companies. This concentration on the hiring side of the labor market is augmented by the concentration of production into large administrative units, which has already been discussed. It is further intensified in many cases by understandings which develop between leading employers in a particular community or industry. These factors in combination operate to produce a high degree of concentration on the hiring side in the bulk of the labor markets of the American economy. If there were no counterbalancing concentration on the side of workers, the establishment of labor rates would be largely in the hands of individual producers, limited to a greater or less extent by market conditions and the partial mobility of workers.

In many fields, labor unions and collective bargaining

operate to produce a considerable degree of concentration on the job-seeking side of the labor market. This concentration is usually narrower in scope than that on the employing side of the market because it only involves group bargaining, not group limitation on the supply of labor.<sup>36</sup> So long as the membership of a union is open to all comers in an industry, concentration on the labor side is limited to bargaining on the terms under which workers will be employed. In contrast, there is often sufficient concentration on the employing side of the market so that employers in particular communities and industries are in a position, not only to bargain on the terms of employment, but to limit the demand for workers by shifting work from one community to another or by limiting production itself. Even though unionization does not result in the same degree of concentration on the labor side of the market as that so often existing on the employing side, it does somewhat correct the unbalance in bargaining position so that in such cases labor rates are collectively bargained instead of being administered by the employing enterprises. Where there is little concentration on the employing side of a market, a strong union may be able to administer labor rates, thus providing an unbalance in the other direction.

Prior to 1935 the most important groups of organized workers were in the railroad, coal mining, clothing, and communication industries, and the skilled workers in the construction and printing industries. In 1933 approximately 2,973,000 workers<sup>37</sup> were reported as on the rolls of labor organizations or 11 percent of the total wage earners and salaried workers in the country.<sup>38</sup> Since that time union membership has expanded greatly until in 1938 a total claimed membership of over 8 million<sup>39</sup> or 27 percent<sup>40</sup> of the wage and salaried workers of the country in that year was reported.<sup>41</sup> The organizations to which these workers belong will be discussed in more detail in chapter IX in connection with the structure of controls. In this chapter their significance lies in the bargaining concentration in relation to the labor market which they give to the workers, thus making many labor markets relatively concentrated on both sides.

<sup>36</sup> The lockout and strike are of course limitations in the demand for and supply of labor respectively, but they are extreme moves in the bargaining process rather than attempts to effect the level of labor rates by continuing restriction of demand or supply.

<sup>37</sup> Wolman, Leo, *Ebb and Flow of Trade Unionism*, p. 16.

<sup>38</sup> *Survey of Current Business*, June 1938, "National Income in 1937 Largest Since 1929."

<sup>39</sup> Rough estimate based on September 1937 estimates given in appendix 14, plus 500,000 additional to account for increase since that date.

<sup>40</sup> Estimate of wage earners and salaried workers in 1938 based on rough estimate of 2.5 million drop from the 1937 average of 32.5 given in the *Survey of Current Business*, June 1938.

<sup>41</sup> The latter percentage is likely to be somewhat inflated whereas the figures presented by Dr. Wolman are corrected for overreporting of membership. It should also be noted that all persons employed are not eligible for union membership, so the percentages do not represent the degree of organization of potential members.



Written agreements between employer and representatives of employees covering both labor rates and other terms of employment constitute the best evidence of this concentration and the resulting quasi-administered labor rates. In July 1938 between 4,700,000 and 5,700,000 workers<sup>42</sup> were covered by such written union agreements. Industries in which there appeared to be a significant proportion of workers covered by such agreements are given in table X. The industries are grouped roughly according to the proportion of the workers that are covered by union agreements. No data are available on the actual number of workers covered by agreements in each industry. However, the importance of the industry is indicated in each case by giving the total persons employed.

For the great bulk of workers not covered by written agreements it is probable that there is sufficient concentration on the hiring side of the market to allow the employer to administer the labor rates within very appreciable limits, altering them from time to time in the light of market conditions and the functions being performed. This is certainly true of the rates paid by most government agencies, by most big business units operating in industries lacking labor organization, and in many medium and small enterprises. Only in the case of very small enterprises or special skills is individual bargaining the usual basis for arriving at labor rates. The behavior of labor rates under these conditions of relatively high concentration on one or both sides of the labor market will be discussed in the next chapter in connection with the behavior of all prices.

*Concentration in relation to the security markets.*—Security transactions can be broken down into four major categories which have quite different characteristics so far as concentration of buying or selling is concerned. These consist of (1) listed securities handled on the public exchange and not newly issued, (2) newly issued securities, (3) unlisted securities not newly issued, and (4) private, commercial, and similar loans which make up special types of security transactions.

In the case of a great many securities listed on the public exchanges and not newly issued, their prices are determined under relatively free market conditions. In such cases there are usually at any one time a sufficiently large number of owners in a position to sell at a price to prevent any one seller from dominating the market for any significant period of time, and there are enough buyers to prevent any one buyer from exercising a significant control over price except very temporarily. In the case of other listed securities, where large blocks

TABLE X.—Prevalence of written union agreements in the United States, July 1938

Industries covered	Number employed in industry, 1935
A. Almost entirely under written agreements:	
1. Clothing, men's (outerwear and furnishings)	321,000
2. Clothing, women's (outerwear and underwear)	270,000
3. Coal mining	455,000
4. Furs	25,000
5. Glass (window, plate, and other flat glass)	73,000
6. Liquor, malt (includes route salesmen)	48,000
7. Musicians <sup>1</sup>	—
8. Newspaper printing and publishing	234,000
9. Performers (legitimate stage, vaudeville, burlesque, grand opera, motion pictures, and radio performers)	—
10. Railroad train and yard services	233,000
Total	1,617,000
B. Large proportion under written agreements (more than half):	
1. Aluminum (rolling and fabrication)	22,000
2. Automobiles and parts	425,000
3. Book, magazine, and job printing and publishing	166,000
4. Building and construction <sup>2</sup>	719,000
5. Cement manufacture	23,000
6. City passenger transport (street railway, elevated, bus, and subway)	—
7. Electrical equipment (includes radios)	275,000
8. Hats and millinery	51,000
9. Iron and steel	389,000
10. Longshore	215,000
11. Machinery and parts	—
12. Maritime transport (licensed and unlicensed personnel)	—
13. Railroad clerical service	172,000
14. Railroad shops and maintenance	114,000
15. Rayon yarn	54,000
16. Rubber (tires, inner tubes, boots, shoes, and other rubber goods)	132,000
17. Stoves	49,000
18. Tailors (merchant tailors employed in retail trade)	15,000
Total	3,111,000
C. About half under written agreements:	
1. Baking (bread, cracker, cake—includes route salesmen)	210,000
2. Glassware	12,000
3. Intercity bus transport	—
4. Metal mining, nonferrous	—
5. Petroleum (crude production and refining)	53,000
6. Shipbuilding and repairs (private shipyards)	24,000
7. Shoes	51,000
8. Silk and rayon textiles	216,000
9. Theater and motion-picture studio employees (motion-picture operators, box office, stage hands, costume seamstresses, etc., in legitimate and motion-picture theaters; studio production employees)	132,000
10. Trucking (city and intercity—includes route salesmen)	158,000
11. Upholstering and floor covering (employees in retail trade)	9,000
Total	1,114,000
D. Moderate proportion under union agreements:	
1. Barbers <sup>3</sup>	—
2. Brick and clay products (includes pottery and chinaware)	50,000
3. Canning (vegetable, fruit, fish, etc.)	140,000
4. Cigarettes	59,000
5. Cigars	26,000
6. Coke and manufactured gas	35,000
7. Cotton textiles and small wares	396,000
8. Dyeing and finishing textiles (excluding textiles)	79,000
9. Flour and other grain products	31,000
10. Furniture (wood, upholstered and metal)	148,000
11. Hosiery	144,000
12. Hotels and restaurants <sup>4</sup>	114,000
13. Jewelry and silversware	787,000
14. Leather (tanning and leather products, other than shoes)	23,000
15. Light and power	120,000
16. Lumber and timber products (logging, sawmills, planing mills, and products other than furniture, pulp and paper, turpentine and rosin)	231,000
17. Milk and other dairy products (includes route salesmen)	456,000
18. Newspaper office employees (editorial, circulation, and advertising departments)	—
19. Pulp and paper products	94,000
20. Sugar refining, cane	15,000
21. Taxi	—
22. Telegraph	70,000
23. Woolen and worsted textiles	176,000
Total	3,102,000

Source: This classification was prepared by the Industrial Relations Section of the Bureau of Labor Statistics; it is based upon union agreements and other information in the files of the Bureau, not upon a statistical survey.

<sup>1</sup> Conditions regulated in many cases by detailed written working rules which may be orally accepted by each employer without being incorporated in an individual written agreement.

<sup>2</sup> Stage, vaudeville, burlesque, and grand opera performers are generally covered by individual contracts with uniform provisions, as agreed upon in collective bargaining.

<sup>42</sup> For estimating the workers covered by written agreements a rough percentage was assumed corresponding to each group shown in table X and applied to the employment figures in each group. The range shown is calculated by increasing and decreasing the resulting figures for each group by 10 percent and then summing them.

of a particular stock or bond are held by a few owners, the conditions of a free market may be lacking.

In contrast to these relatively free market conditions for seasoned securities, new security issues cannot usually operate on the basis of a free market. Such large blocks of a stock or bond issue are initially held by the issuing corporation and subsequently by the underwriting syndicate that a free market cannot be expected. For a time the syndicate almost necessarily dominates the selling side of the market and is in a position to "break" the market. The economic implications of the process of new security flotation have received so little attention that it is not possible to indicate clearly the structural significance of the lack of a free market in the period of initial flotation.

Unlisted securities usually have a somewhat less broad market than listed securities and are therefore more subject to control for periods of time by a particular buyer or seller. Often administered prices appear in this field as a particular firm specializes in a certain issue, offering to buy at a price which is held constant for considerable periods of time. The same firm is likely to establish a selling price constant for periods of time. The difference in the fixed buying and selling price constitutes the equivalent of a commission for handling the securities and taking the risks of maintaining the market.

Transactions involving private and commercial and other loans appear to run the whole gamut of market conditions. While there is little evidence of concentration in relation to the market on the part of either lenders or borrowers in the main financial centers when large sums and ample security are involved, the small local borrower is usually faced with only a small number of potential lenders. The extent to which lending terms are administered by the lender, are bargained between the lender and the borrower, or are made in the free market, cannot be set forth here, but it is well known that administered terms are set by the lender so far as a large body of small businesses and borrowers are concerned, and that the terms often remain constant for months or even years at a time. How significant this is to the structure of the whole economy is a problem which has received little attention and yet may be important.

The foregoing survey of the degree of concentration in the three main markets—goods, labor and securities—has blocked out the areas in which the market mechanisms facilitate the organization of resources through free market prices and the areas in which the market operates through prices which are not currently set by the interaction of a large number of independent buyers and sellers. In spite of its crudeness, the survey has shown that outside of the prices of agricultural products and listed securities, the bulk of prices, including labor rates, are not established in free markets. This is an

essential structural characteristic of the American economy. The fact that such a large proportion of prices are made in markets in which there is a relatively high degree of concentration of buying, of selling, or of both, is an essential key to an understanding of the behavior of prices and of the organizing function played by the market mechanism in the American economy. It means that the market mechanism plays a smaller role in the organizing of resources than would be the case if the bulk of prices were made in free markets and points to the larger role played by administration and by the other organizing influences yet to be discussed.

### Coordination through Canalizing Rules

The framework of laws, rules and customs which canalize human activity without dictating it are so familiar that their organizing influence is often little realized except as some sharp change is made such as the adoption of a new canalizing law or the widespread breaking of an old custom. Yet in practice they are probably as essential to the effective organizing of resources as are administration and the market mechanism. Consider how much the American one-price system of retail buying and selling contributes to effective retail distribution, yet it is only a matter of an accepted custom. Or the great aid to the organizing of production which is given by the standard rules of double-entry bookkeeping which are mostly a matter of custom though sometimes codified into law for such types of activity as railroad or utility operation. Essential to the effective working of many of the organized markets are the marketing rules by which transactions are guided but not determined. The laws which require the fulfillment of contracts and laws which limit the theft or destruction of physical wealth are essential to the organization of modern industry. All of these constitute examples of working rules by which human activity is guided into more productive channels.

Not all the laws, rules, and customs are solely canalizing in character. Some dictate specific action, as when an income-tax law requires a specific payment or a safety regulation, as interpreted by a regulating agency, requires the demolition of an unsafe building. Laws which call for specific performance are administrative in character though they may also have a canalizing influence.

On the whole, the bulk of laws, rules, and customs are primarily canalizing. By setting up barriers to particular actions they narrow down the range of discordant activities and thereby encourage activities on the part of individuals, enterprises, and government units which mesh with each other in a more organized fashion than would be possible in the absence of their canalizing influence. The zoning ordinance which limits new factory construction to one part of a city

and separates residential from commercial areas does not require anyone to build a new factory but only requires that *if* a new factory is built it should be built in the manufacturing area, not in the residential or commercial area. Such an ordinance can thus produce a more organized development of a city without administering that development. It canalizes city development without dictating specific performance.

Relatively little analysis has been made of the organizing influence of canalizing rules in the field of economic activity. Studies have been made of the way laws come into being, the way government institutions develop, and the way individuals holding political positions acquire those positions or are displaced, but relatively little attention has been given to the organizing influence which laws have on economic activity.<sup>43</sup> Until more extensive analyses have been made, it is not possible to indicate clearly the role played by canalizing rules. Yet such work as has already been done indicates clearly that laws, rules, and customs do play a major role in making the separate activities of millions of individuals mesh into the organized activity of the American economy.

#### Coordination through Accepted Goals

The fourth major organizing influence, that of accepted goals, has received even less study than canalizing rules yet it is clear that it plays a significant role in the organization of the use of resources. When two or more people agree to accomplish a certain objective it is often possible for their action to be coordinate simply because each one acts in terms of the logic implicit in the accepted goal. In such a simple action as moving a table across a room, if two men agree on this action, each one almost automatically takes hold of the end of the table nearest to him. Only if neither is nearer one end than the other do they waste effort by both grabbing for the same end of the table. In the complex life of every day, reliance is constantly being placed on the logic of accepted goals to guide individuals so that their separate activities fit together. A meeting is to be held, a big contract is to be filled, or a boat is to be docked. With only a minimum of specific instructions, the individuals directly responsible for any one of these activities will take up their appropriate positions and carry forward their respective functions. The man on

the pier does not have to be told to catch the first coil of rope thrown out from the boat as it comes close to the pier, draw in the slack, and drag the following hawser over the appropriate capstan. His training allows him to follow the logic of the situation as it develops, drawing in the successive hawsers, perhaps receiving directions from time to time with respect to particular details of action but, on the whole, carrying out those actions implicit in docking the boat which are appropriate to his position. Each other member of the pier crew is likewise guided to a greater or less extent by the logic of the job in hand. With a minimum of explicit direction, the organized activity of tying the ship up at the pier is carried forward. In situation after situation which could be analyzed, organization is to a significant extent the result of the acceptance of some explicitly recognized goal though in more complex situations its influence is usually combined with that of the market mechanism, administration, and canalizing rules, the different influences in combination producing the organized result.

So little study has been given to the part of the organizing influence of accepted goals in economic matters that it is not possible to set forth their role in the organizational structure of the whole economy. It is well recognized that in times of war the national unity growing out of the widespread acceptance of the single war objective does act as an organizing influence. In peace times there may be similar though less clearly discernable results growing out of the acceptance of national goals. Until analyses along this line have been developed, the role of accepted goals which is so important to the organization of activity in lesser spheres cannot be set forth as it effects the organizational structure of the whole economy.

Regardless of the exact role of accepted goals, there can be little question that the four factors discussed above, administration, market mechanism, canalizing rules and accepted goals, are of major significance for the organized use of resources. Together they constitute the main influences which make the separate activities of the millions of workers in the nation combine into an organized whole. Each concrete situation usually involves a combination of these influences, sometimes in one proportion, sometimes in another. These influences in combination provide the organizational structure of the whole economy and the relative roles which each plays gives its specific character to the organizational structure of the American economy.

<sup>43</sup> A few studies of the character suggested have been made as John R. Commons, *The Legal Foundation of Capitalism*; James C. Bonbright, *Valuation of Property*; and Berle and Means, *The Modern Corporation and Private Property*.

## CHAPTER VIII.—THE PRICE STRUCTURE

### Introduction

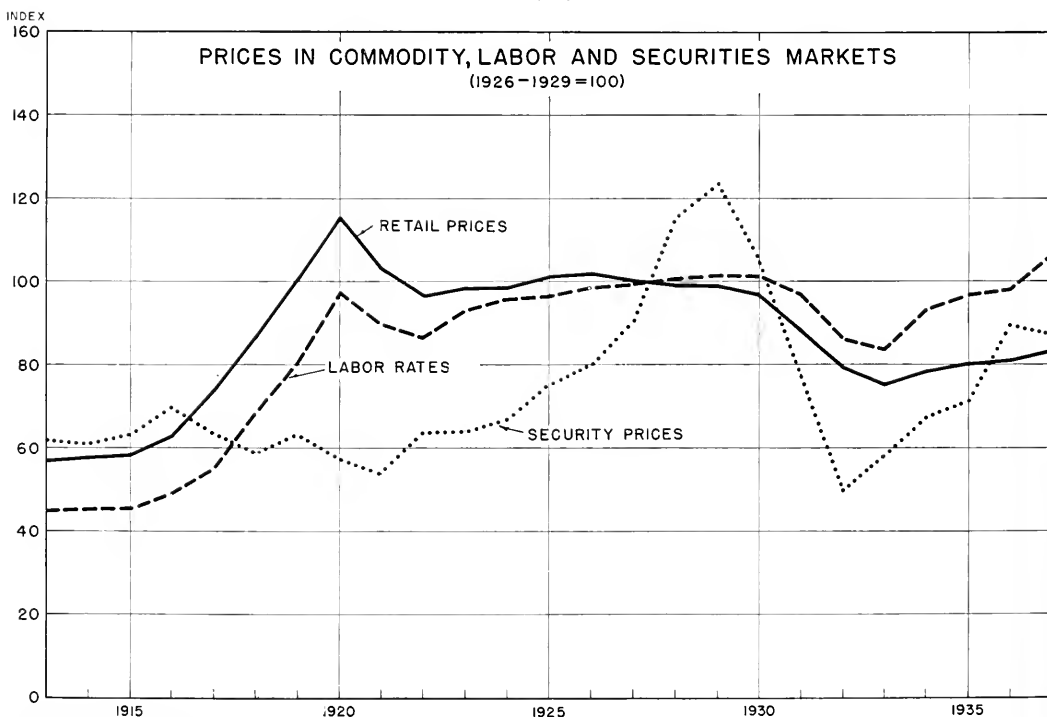
In the preceding chapter the market mechanism has been emphasized as a major coordinating influence. This coordination is brought about through the series of exchanges between economic units. These in turn are in large measure governed by prices which act as a mediator in apportioning resources and benefits. It is the purpose of this chapter to examine the structure of prices in order to discover, if possible, the extent to which they do in fact contribute to full and effective use of resources. Following the procedure of earlier chapters, the price structure will be considered first in terms of the interrelationship of prices as of a given time, then in terms of the trends of change, and finally in terms of their sensitivity to depression.

Prices fall into three major categories according to the three main types of transactions which they govern—goods, manpower, and securities. The first,

goods prices, involves primarily the products of productive activity, including capital goods as well as consumption goods and both commodities and services. The second category involves primarily the employment arrangements whereby individuals agree to work under administrative direction for a wage or salary. The contractual wage or salary rates enter into the price structure as the price for manpower. The third category, that of security prices, refers primarily to the legal instruments representing the prospect of future money returns in such forms as interest and dividends.<sup>1</sup>

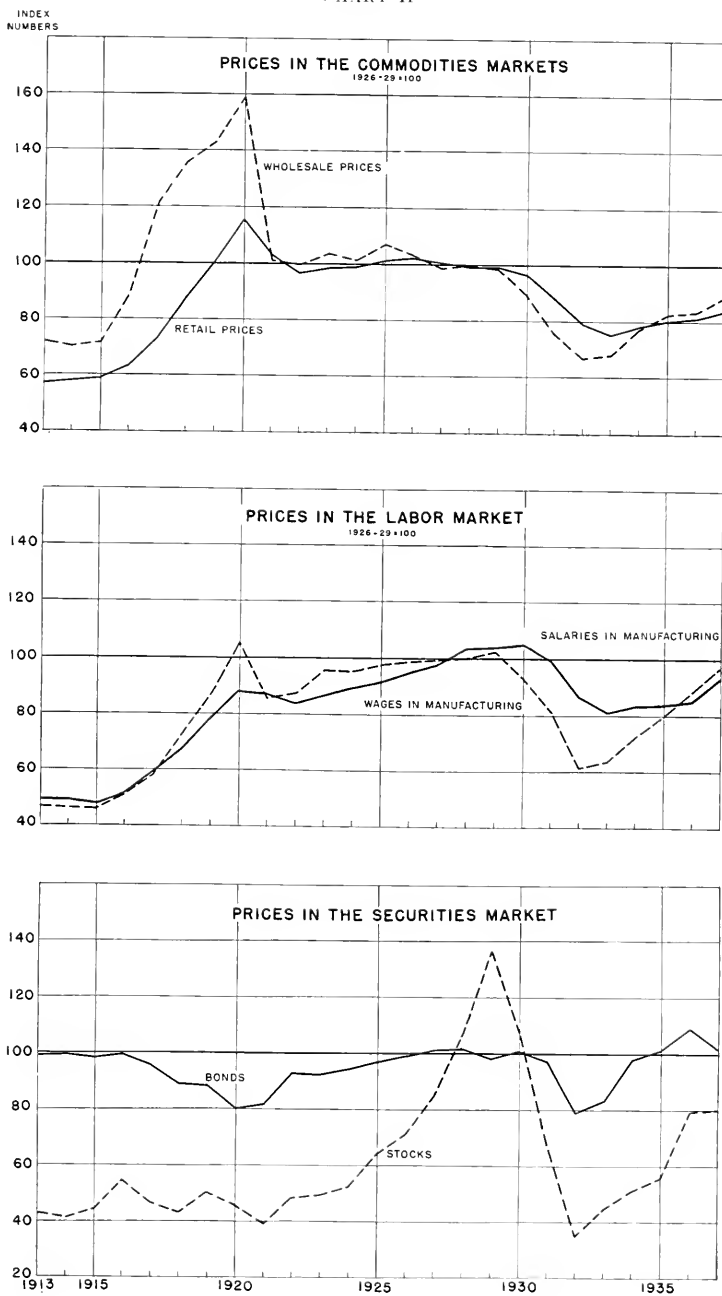
<sup>1</sup> These legal instruments often involve more or less contingent threads of control over productive enterprises, as in the case of voting stock, or over instruments of production, as in the case of a farm mortgage, but their main characteristic from the point of view of price is their prospect of bringing in money to the purchaser in the future. At their initial sale, securities may bring capital to productive enterprise or funds to be spent on current consumption, whereas in subsequent sales the interest and controls represented by the security are transferred from one holder to another at a price. In either case the essential nature of the transaction is the payment of money currently for the prospect of receiving money in the future.

CHART I



Source. See appendix 18, section 20.

CHART II



Source: See appendix 18, section 20.

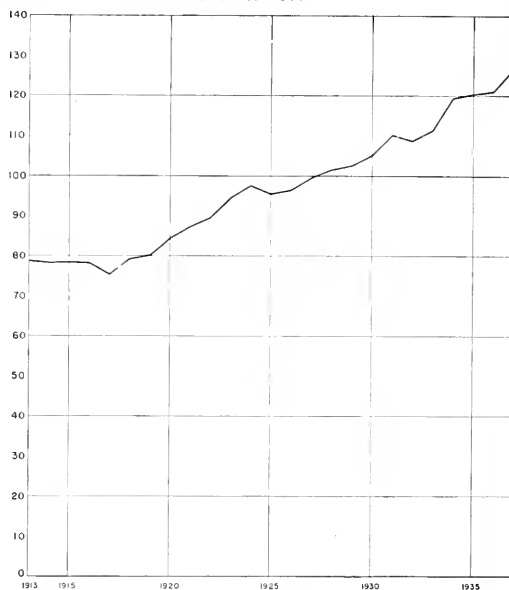
In order to cover the essentials of the price structure, it would be necessary to outline the structure of prices in the goods market, the structure of wage and salary rates, and the structure of security prices, and to follow through the interrelations among these three structures.

### The Relation Between Goods Prices, Labor Rates, and Security Prices

A rough indication of interrelation between prices in the three main price fields can be obtained by comparing price indexes representing price behavior in each field. In chart I, crude indexes are given of the changes in goods prices at retail,<sup>2</sup> in labor rates, and in security prices. An examination of this chart indicates that retail prices and labor rates tend to fluctuate fairly closely together for short periods, both rising sharply in the war years from 1915 to 1920 and then falling together in 1921 and 1922, falling again from 1930 to 1933 and rising from then to 1937. This close relation between fluctuation in hourly labor rates and fluctuations in retail prices holds for both hourly wage rates and salary rates but neither appears to fluctuate closely with wholesale prices. This is made apparent in chart II, which gives indexes for each of the four items separately and shows wage and salary rates fluctuating fairly closely together while wholesale prices show much more violent fluctuations in the war period than do retail prices.

Though labor rates and retail prices tend to fluctuate roughly together for short periods, labor rates have increased fairly steadily in relation to retail prices. This is shown in chart III, which gives the relation of hourly

CHART III.—Ratio of wage rates to retail prices 1913-1937, 1926-29=100



Source: Based on data given in appendix 18, section 20.

labor rates to retail prices. Taking the index of retail prices as 100,<sup>3</sup> the index of labor rates increased fairly steadily from 78.8 in 1913 to 126.5 in 1937. Both the retail price index and the labor rate index are too crude to allow a precise measurement of the increase in the real buying power of hours of labor, but they point to a very real and fairly continuous increase since 1913. This increase does not necessarily mean that annual incomes have increased but only that an hour of labor can buy more goods.

The increase in hourly labor rates in relation to retail prices presumably reflects, for the most part, such of the gains from technical improvement as have been passed on to the consumer in the form of either lower prices or higher labor rates. Just how far the gains from technical improvement have actually been passed on and how far they have been retained by producers cannot be determined without intensive research, but it is clear that in very considerable magnitude the gains have been passed on. In the main this has resulted from the individual producer's effort to expand his markets, from price competition among producers, and from the pressure of organized labor to increase its hourly wage rates.

<sup>2</sup> As an index of retail prices, the Bureau of Labor Statistics *Index of the Cost of Living*, is used to reflect goods prices because it is probably more typical of goods prices as a whole than an index of wholesale prices or a composite of wholesale and retail prices. In the first place the cost of living is on the whole more comprehensive than an index of wholesale prices. It includes the prices for many commodities and services which do not pass through the wholesale markets, such as the professional services of doctor and dentist, the personal services of barber shops, amusements, and house rentals. It also reflects in the price of retail commodities not only the price for the function of retail distribution but to some extent the wholesale prices of the commodities distributed at retail. On the other hand, it misses the goods sold at wholesale but not passing through the retail markets, such as capital equipment and construction goods. In the second place, both the wholesale and retail indexes probably exaggerate the flexibility of prices because they tend to be made up of more standard commodities which, on the whole, fluctuate in price more than nonstandard goods. This exaggeration of flexibility is probably inherent in the creation of price indexes. In order to construct an index of prices it is almost essential to employ the prices of relatively standard products to typify the prices in whole industries. Yet in most industries the standard products are, on the whole, more flexible in price than the less standard products. Thus cotton yarns and standard cotton sheering, print cloth and similar standard fabrics are used to typify the cotton textile industry. These are items all of whose prices are relatively flexible. But approximately 20 percent of the value of products of the cotton textile industry is made up of specialty products such as draperies, plush, velvet, surgical dressings, woven labels, which are relatively less flexible in price. For most industries it is easier to obtain continuous price series for standard products than for specialty products and the price of a standard product seems a more appropriate item in a price index than the price of any single specialty product because it is likely to represent a larger proportion of the total product of the industry. The same exaggeration likewise tends to arise in the cost of living index, though since the items in the cost of living index are, on the whole, less flexible than wholesale prices the exaggeration of flexibility is probably not so great.

<sup>3</sup> Both indexes being based on 1926-29 as 100.

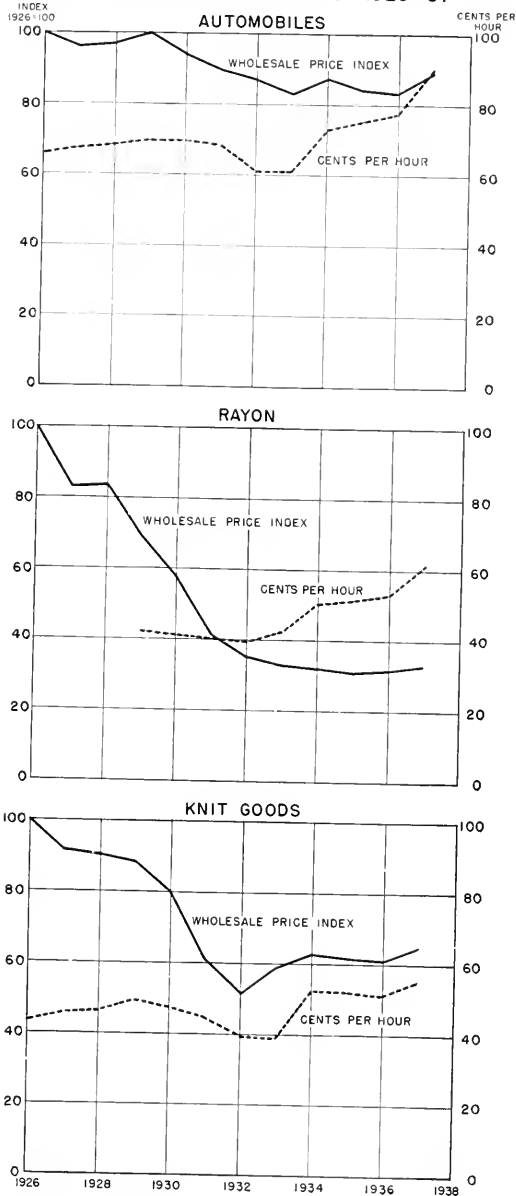
This passing on of the gains from technical improvement can be seen in detail in some of the industries which have shown great strides toward more efficient production in recent years. In chart IV below, hourly wage rates<sup>4</sup> and indexes of wholesale prices are given for three such industries. In the automobile industry the price of cars declined fairly steadily from 1926 to 1933, while wage rates appear to have been increasing steadily from 1926 to 1937 except for the depression years of 1932 and 1933. Not only was the quality of the low-priced car steadily improved but the technical improvement which reduced the man-hours necessary to produce a car was to a greater or less extent reflected in the smaller number of hours which it was necessary to work in the industry in order to obtain enough wages to buy a car.<sup>5</sup>

In the case of rayon, the price dropped sharply from 1926 to 1931 and more gradually thereafter, reflecting the decreased costs of production. Unfortunately data on hourly earnings are not available prior to 1929. The level of earnings in that year, however, and some steady increase shown since 1932 indicate that the gains from technical improvements in this industry were first passed on to the consumer in the form of lower prices and subsequently passed on to the workers in the form of higher wages.

The knit goods industry appears to have gone through a period prior to 1930 when technical gains were passed on through both price decline and wage increase. Thereafter prices and wages have moved up and down together, maintaining a fairly constant relationship with each other.

In considering the gains in the buying power of hourly earnings it is important not to confuse these with increases in annual wages or with improvements in the standard of living. Because of extensive unemployment and part-time employment, increases in relative hourly wages have not necessarily meant an increase in annual income. Likewise even with full-time employment the reduction in the hours of the standard work week, already indicated in chapter V has reduced the total hours worked so that the increase in relative hourly wage rates has not resulted in a commensurate increase in income even for those persons fortunate enough to be fully employed. In each of the three industries shown in chart IV, weekly earnings were lower in 1936 than in 1929 although hourly wage rates were substantially higher.<sup>6</sup> The significance of the decline of goods

CHART IV  
WHOLESALE PRICES AND HOURLY WAGE RATES  
IN SELECTED INDUSTRIES 1926-37



Source: See appendix 18, section 21

<sup>4</sup> National Industrial Conference Board hourly earnings are used in this chart for automobiles and knit goods although they differ somewhat from the hourly earnings shown for these industries in appendix 6. The latter are based on Bureau of Labor Statistics data, which are not available for the years prior to 1932.

<sup>5</sup> The manpower involved in producing the raw materials for the industry and the wage rates paid in their production should also be taken account of, but data are not now available in a form to do this.

<sup>6</sup> See appendix 18, section 21.

prices in relation to hourly labor rates lies in the decline in real prices in response to the decline in real costs resulting from technical improvement. Only under conditions in which resources were continuously used to the full and men and equipment were not idle would this decline in prices be surely reflected in an increase in the standard of living.

In contrast to the closely similar behavior of the indexes of retail prices and labor rates, security prices appear to fluctuate in a manner largely independent of these two. Between 1915 and 1920, when both retail prices and labor rates approximately doubled, the index of security prices fluctuated relatively little. It was, in fact, slightly lower in 1920 than in 1915 since, although stocks went up a little, bonds dropped appreciably in response to the higher rates of interest resulting from the war, as can be seen in charts I and II. Between 1922 and 1929 when both retail prices and labor rates were relatively stable except for the gradual increase in the latter, the index of security prices approximately doubled, the bonds index recovering its earlier loss and the stock index tripling. Only in the depression period from 1929 to 1937 do the indexes of retail prices, labor rates, and security prices show the same general behavior. All three declined with depression and rose with recovery, security prices dropping sooner and more sharply and recovering sooner and more sharply than the other two. Retail prices dropped more than labor rates and recovered less, thus continuing the trend toward higher hourly labor rates in relation to prices already referred to, but neither retail prices nor labor rates dropped as far or recovered as much as security prices.

So far, in discussing the structure of prices, attention has been focused on general price indexes typifying the three main types of market transactions. This was done in order to emphasize the general relation of the different markets to each other. Actually within each of these markets there is the greatest diversity of price behavior, with certain patterns running through this diversity which appear to give to the system of prices in the United States its essential structure. For the purpose of examining these patterns of price behavior, each market will be considered in turn, first the prices of goods, then labor rates and then, very briefly, security prices.

### The Structure of Goods Prices

In comparing indexes of goods prices with indexes for labor rates and security prices, an index of retail prices has been employed to represent the general behavior of goods prices. This index has been used because, on the whole, an index of retail prices seems more typical of the behavior of goods price than the

wholesale price index or than any composite index which could at present be constructed. But in examining the internal structure of goods prices, the constituent items in the available wholesale price index appear likely to give a better basis of analysis than those making up the retail price index. The available data on individual wholesale prices are on the whole more reliable than those for retail prices;<sup>7</sup> wholesale prices tend to be more sensitive than retail prices and thus magnify the essentials of the goods price structure; and finally, wholesale prices lie at the heart of the goods market and their behavior is basic to the economic adjustments by which the market mechanism can operate to facilitate the full and effective use of resources.

As is to be expected, the behavior of individual wholesale prices is very different from that of the wholesale price index. A fairly typical sample of individual price series is given in chart V.<sup>8</sup>

The separate series show the greatest diversity of behavior. Both egg and coal prices show a marked seasonal variation, but egg prices show clearly the influence of the depression, while the price of coal hardly reflects the depression at all, the drop in price from 1929 to 1932 being more like a step in a longer trend of declining anthracite prices. Most of the series show the influence of the depression to a greater or less extent, though men's dress shoes fail to show a depression decline in price and rayon fails to show a rise in price with recovery. Tobacco prices followed fairly closely the behavior of the wholesale price index, while rye shows independent fluctuations which might be traced to variations in the size of crop. The top four series show price changes practically every month, while the price of rayon and dress shoes reflect an appreciable degree of administrative control, each of them remaining constant for months at a time. Glucose is intermediate, being fairly flexible in price yet showing occasional periods of price administration. Almost any group of wholesale prices chosen at random will show this same diversity of behavior.

### Sensitivity to Basic Factors Conditioning Economic Activity

The first important structural characteristic underlying this diversity of behavior is associated with differences in the sensitivity of prices to gradual changes in the basic factors which condition economic activity—changes in techniques of production, in available resources, and in consumer wants. If prices are to act in such a way as to apportion resources in balanced fashion between different uses, price relationships must

<sup>7</sup> The reliability of the constituent items in the Bureau of Labor Statistics *Whole Sale Price Index* is discussed in detail in appendix 1.

<sup>8</sup> This chart shows the variation in price movements by months.

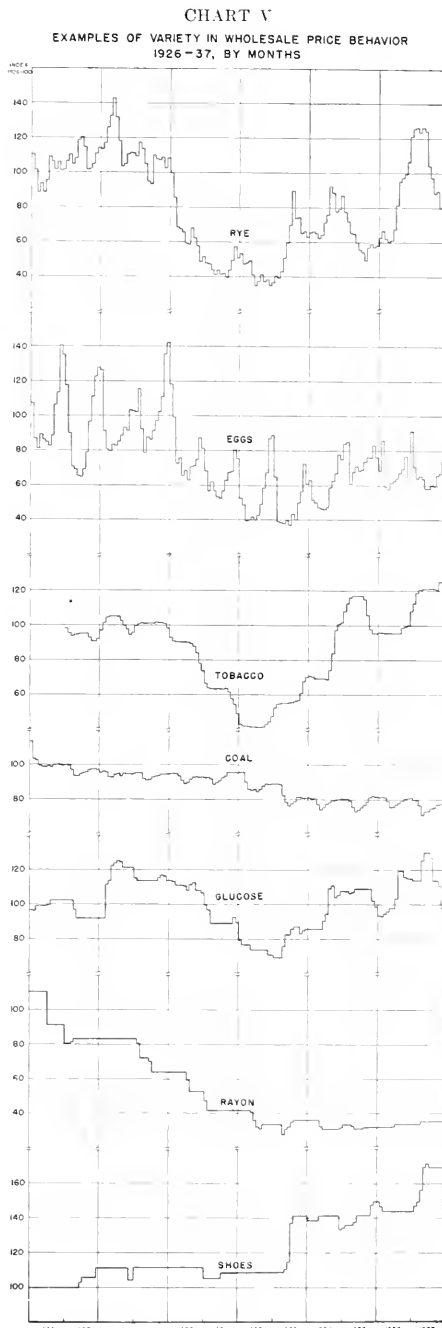


undergo constant adjustment to new conditions. When improved techniques of producing rayon are developed so that less manpower is necessary to make it, the full use of the new techniques will be developed only if rayon production is expanded to an extent corresponding to the reduction in the resources, including manpower, necessary to produce it. This calls for a lowering of rayon prices in relation to the prices of other textile fibers. Likewise, if the supply of a particular resource is approaching exhaustion, balanced use of resources requires a restriction of its use to the filling of the most pressing wants and the substitution of other materials where possible. If this restriction is to be accomplished through price, a gradual increase in the relative price of the particular resource would be required. Finally, when consumers' wants shift from one type of goods to another, the readjustment in the use of resources calls for readjustment in price relationships.

It is an important characteristic of these changes in price relationship which work for balanced use of resources that they require only gradual change. They do not call for day-to-day or week-to-week or monthly changes. While flexible market prices may actually make this adjustment by constantly changing, a price which was readjusted only once or twice a year might also be sufficiently flexible to keep pace with the underlying changes in techniques of production, in available resources and in consumer wants. At best the most effective use of resources which can be hoped for in practice can only be a crude approximation to a balanced use and, so long as full use of resources is maintained, relatively infrequent readjustments in price could serve to maintain approximate balance in price relationships. Thus while administered prices which change infrequently do not contribute effectively to full use of resources, as will be made clear in the next section, there is nothing inherent in such administered prices to prevent relatively balanced use of resources, provided full use is not dependent on their flexibility.

The extent to which both market and administered prices adjust to the basic conditions underlying the use of resources could be clearly brought out if adequate data were available covering a fairly long period of full use of resources with relatively stable prices. Unfortunately, long periods of sustained full use of resources have not occurred in recent times. The period from 1923 to 1929 was one of relatively full use of resources but relative price stability after the post-war distortions was not achieved until 1925 or 1926. By analyzing the price data for the period from 1926 to 1929, however, considerable light can be thrown on the price readjustments which take place in the presence of relatively full use of resources and a relatively stable level of goods prices.<sup>9</sup>

<sup>9</sup> The choice of 1926 as the initial year in the period analyzed is due in part to the fact that the number of items on which wholesale price data is published by the Bureau of Labor Statistics was greatly increased in that year.



Source: U. S. Department of Labor, Bureau of Labor Statistics.

Between 1926 and 1929, though the index of wholesale prices dropped only 4.7 percent, individual prices changed in such a way as to bring very considerable alterations in price relationships. This shift in price relationships is clearly indicated in chart VI which shows the 617 items included in the Bureau of Labor Statistics wholesale price index distributed according to the percent change in price from 1926 to 1929.<sup>10</sup> Approximately 93 of the items dropped from 0 to 5 percent, thus following fairly closely the change in the wholesale index which is indicated by the dotted line. On the other hand, 67 items were more than 15 percent higher in 1929 than in 1926, while 113 items were at least 15 percent lower. This diverse behavior typifies the constant readjustment taking place in prices and while some changes can be attributed to temporary conditions, a considerable proportion undoubtedly reflect basic changes in the appropriate use of resources.

Readjustment was not equally marked for different groups of prices. In chart VII the data of chart VI<sup>11</sup> are broken down into ten separate groups according to administrative and market dominated prices as reflected in frequency of price change.<sup>12</sup> It is evident from the chart that as the role of administration in-

creases, the likelihood of marked readjustments in price diminishes. In the least flexible group of administered prices there are 8 items which showed no price change at all from 1926 to 1929, while, for nearly three quarters of the items, the average price in 1929 was within 5 percent of the average price in 1926. At the other end of the scale, only a fifth of the market-dominated prices averaged within 5 percent of their 1926 prices. The greater diversity of behavior in the market-dominated prices, largely agricultural products or their derivatives, cannot be accounted for wholly by differences in crop conditions between 1926 and 1929. On the whole the marked contrast between the behavior of the market-dominated prices and those showing marked infrequency of price change can only be accounted for by a lower sensitivity to changes in the basic factors—techniques, resources, and wants.

In order to discover if possible the type of prices tending to be least sensitive in their basic adjustment, the 617 items have been regrouped according to several significant categories and the behavior within the separate groups examined. First the separate items were grouped into food, clothing, and other items.<sup>13</sup> The results are given in chart VIII. From the chart it is clear that on the whole food prices are sensitive to changes in the three basic factors, wants, resources, and techniques, clothing prices are intermediately sensitive, while the bulk of the price insensitivity is in other items. The same items are then grouped according to fabrication. Here again, the raw materials are most sensitive, the semifinished less so, and the finished commodities least sensitive. Finally, the items are grouped by durability, the nondurable commodities showing the most sensitivity, the semidurable less, and the durable the least.

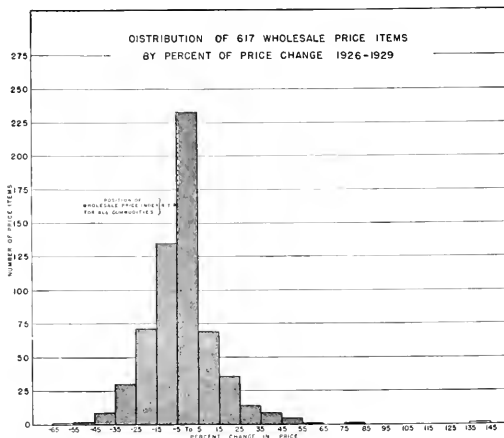
The above analysis suggests that with relatively full use of resources and a relatively stable level of goods prices, the bulk of prices show sufficient flexibility of price to make possible the adjustments to changes in techniques, in available resources and in consumer wants which are required for reasonably balanced use of resources. At the same time it is reasonably clear that there are some groups of items which do not show the requisite flexibility. Even if full use of resources were attained the insensitivity of such items would impede the balanced use of resources. The above analysis also suggests that the items which are insensitive to changes in the basic factors tend to fall among the more highly processed goods and durable goods. These products are particularly associated with the dominance of administrative controls. However, the analysis is based on the frequency of particular types

<sup>10</sup> While the Bureau of Labor Statistics wholesale price index includes 784 items many items are largely duplications, as for instance several butter items. Because of the weighting system used in compiling the index this duplication is in no way detrimental but in the analysis of separate price behavior, this duplication would tend to distort the results except where Bureau of Labor Statistics weighting is also employed. For this reason duplicating items have been dropped according to principles outlined in appendix 2. Also some items have been dropped because the data were incomplete. This reduces the items from 784 to 617. The annual figures used are averages of the monthly data.

<sup>11</sup> The data upon which these charts are based are given in table 1 of appendix 2.

<sup>12</sup> This follows the procedure used in *Industrial Prices and Their Relative Inflexibility*, by G. C. Means, 74th Cong., 1st sess., S. Doc. 13.

CHART VI



Source: Based on data given in appendix 2, table 1.

<sup>13</sup> The food and clothing categories both include the goods ready for consumption, and the raw materials going into them. See table 1, appendix 2.

of behavior for groups of prices so that no conclusions can be reached as to the sensitivity of particular items. It can point to the types of prices requiring investigation and can suggest the magnitude of this type of insensitivity, but only detailed investigation into the effectiveness with which particular industries are using the available resources could determine that particular prices were a serious impediment to balanced use of resources.

The discovery and elimination of prices which impede the balanced use of resources constitutes one of the continuing functions which need to be performed if effective use of resources is to be attained. It is a function which does not involve the whole economy as a single going concern, but which can be carried out piecemeal, one industry at a time, as techniques for dealing with the problem are further developed and as the need for specific action becomes more apparent. Failure to perform this function may lead to waste and inefficiency in the use of particular resources or to unjustified monopoly profits, but it has relatively little effect on the economy as a functioning machine.

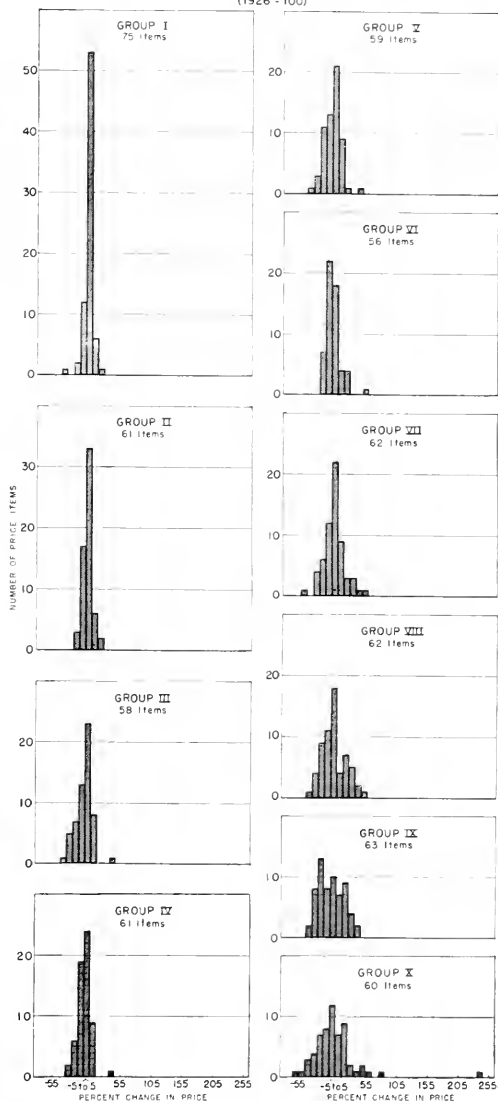
#### Sensitivity to Depression and Recovery

More important for the immediate functioning of the whole economy are the differences in the sensitivity to depression and to recovery displayed by the prices of different goods. The tremendous drop in economic activity between 1929 and 1932 and the large measure of recovery from 1932 to 1937 give a basis for analyzing this type of sensitivity. The quite diverse behavior of particular wholesale prices from 1929 to 1932 is shown in chart IX. There is nothing in the behavior of the individual items that can properly be called typical. Though the wholesale price index dropped 32 percent, a third of the items dropped more than 35 percent while another third dropped less than 25 percent.<sup>14</sup> The same diverse behavior appears in the recovery period and is shown in chart X.

At first glance the diverse behavior of prices in these two periods might appear to be of the same nature as the diverse behavior between 1926 and 1929. Actually, however, the behavior in the depression period is intimately tied to the behavior in the recovery period and appears to involve a specific depression behavior superimposed on the tendency toward price readjustment which operates when resources are more fully employed. On the whole, and with many exceptions, there was a rough tendency for the prices which dropped most from 1929 to 1932 to rise most from 1932 to 1937 while those that dropped least tended to rise least. This is indi-

cated in chart XI which gives the 617 wholesale price items plotted so as to show changes in price in both periods. Each dot represents one item and its distance from the vertical axis represents the fall in price while

CHART VII  
WHOLESALE PRICE ITEMS IN TEN FREQUENCY GROUPS  
DISTRIBUTED BY PERCENT CHANGE IN PRICE, 1926-29  
(1926 = 100)

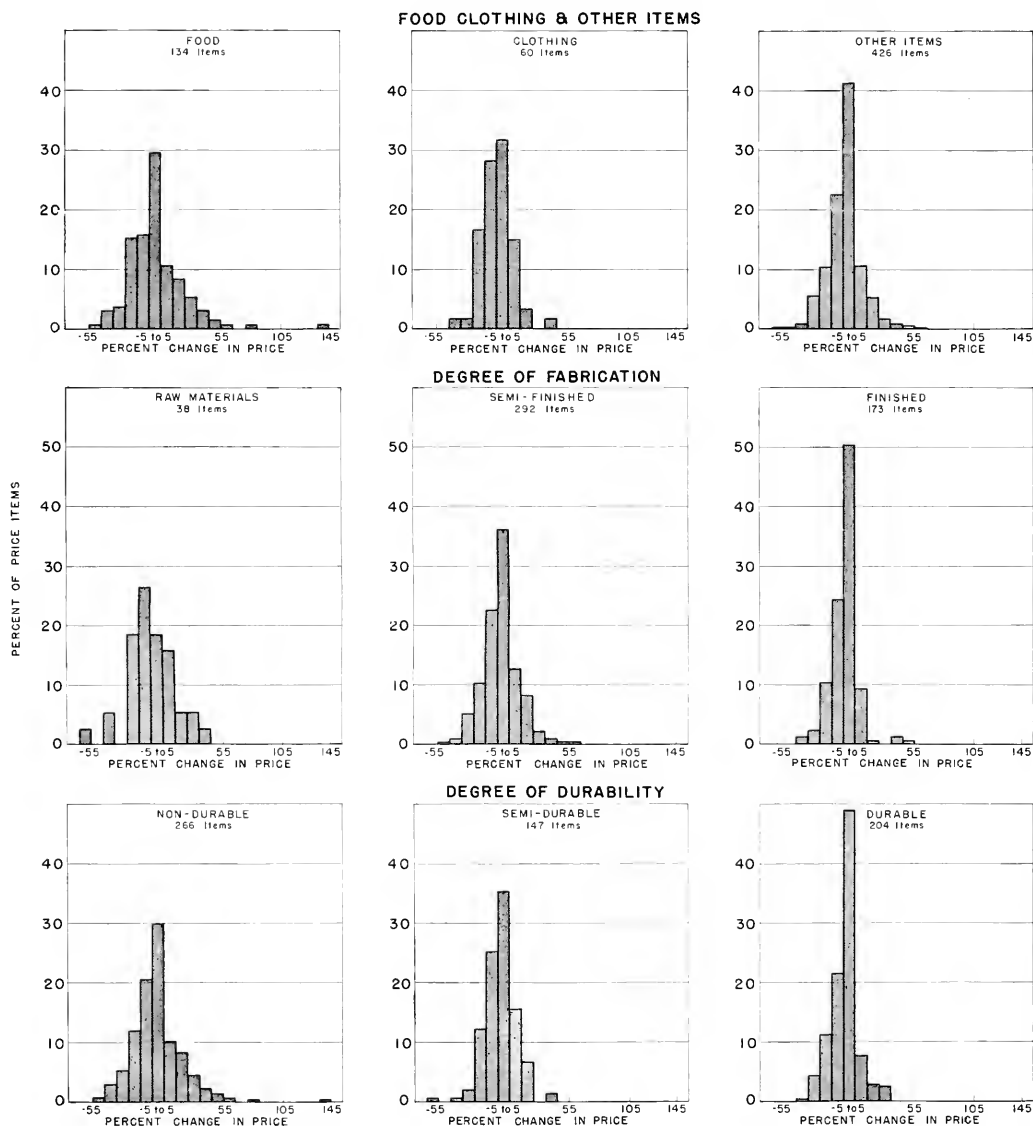


<sup>14</sup> If the Bureau of Labor Statistics weights were applied to the individual items, more emphasis would be placed on the more sensitive items.

Source: Based on data given in appendix 2, table 1.

CHART VIII

## GROUPS OF PRICES DISTRIBUTED ACCORDING TO PERCENT CHANGE IN PRICE FROM 1926 TO 1929



Source: Based on data given in appendix 2, table 1.

the distance from the horizontal axis represents the rise.<sup>15</sup> Thus if the price of an item dropped 10 points and recovered 10 points (1929=100), the point representing it would lie on the line AA' fairly close to 0. If it dropped 50 points and recovered 50 points, its dot would also lie on the line AA' but further from the origin. If it recovered more than it dropped, its dot would lie above AA' and if it recovered less it would lie below the line.

It is clear from the chart that the bulk of prices had not recovered all of their depression drop by 1937. The line BB' represents the recovery of the wholesale price index. The scatter of the points about the line BB' suggests that prices which were sensitive to depression influence were also sensitive to recovery influence, on the whole to about the same degree.<sup>16</sup> Similarly, the insensitive prices were on the whole insensitive in both periods.

*Depression sensitivity and character of product.*—This similarity of behavior in both depression and recovery offers the possibility of measuring the sensitivity of individual prices to depression and recovery in a way that largely eliminates the influence of non-depression factors such as were at work between 1926 and 1929. A crude measure can be derived by taking an average of the prices in 1929 and 1937 and using the difference between this figure and the price in 1932 as the drop in price attributable to the depression.<sup>17</sup> The resulting figure gives a better indication of sensitivity to depression than either the drop in price in the first period or the rise in the second period because any

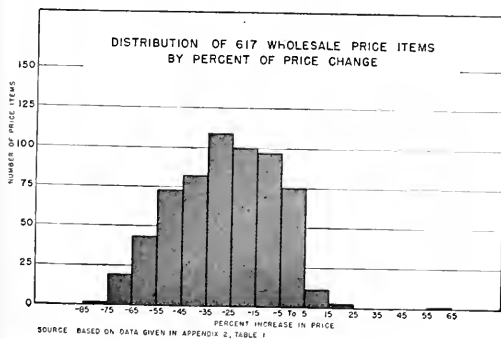
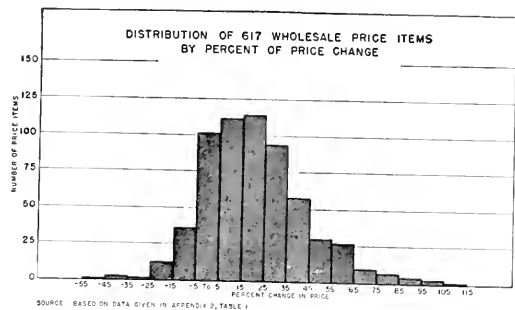
<sup>15</sup> The changes in both periods are stated as a percent of the 1929 price.

<sup>16</sup> The coefficient of correlation between the depression drop and the recovery rise for the 617 items is 0.51. The size of this figure suggests the existence of an appreciable degree of association between the depression drop and the subsequent recovery rise.

<sup>17</sup> A technically more satisfactory index of depression sensitivity would be one based on the results of associating each price series with an index of industrial activity and a trend factor, but the crude index developed above gives essentially the same results and is used in the text because it can be more easily grasped.

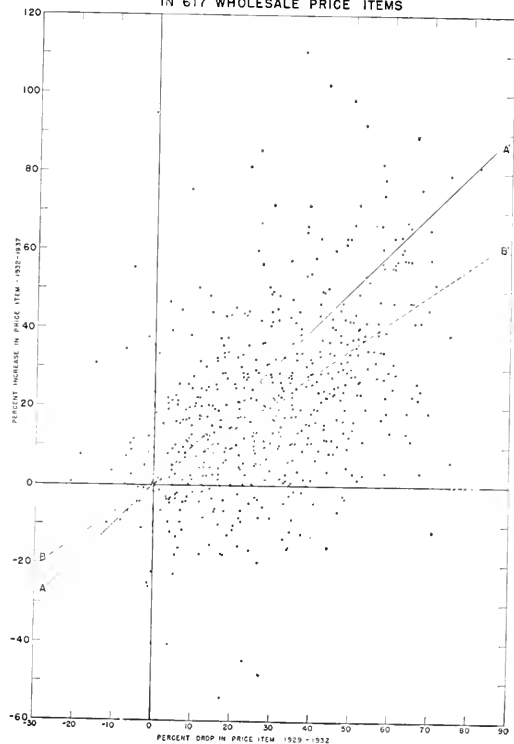
CHART IX

Depression Period, 1929-1932

CHART X  
Recovery Period 1932-1937

change in price in the period not attributable to the depression and recovery is partly averaged out. In the discussion which follows this index of depression sensi-

CHART XI

RELATION BETWEEN THE DEPRESSION DROP AND RECOVERY RISE  
IN 617 WHOLESALE PRICE ITEMS

tivity will be used, the large values indicating greater sensitivity and the small values indicating lesser sensitivity. A negative index would indicate that the price in 1932 was higher than the average of 1929 and 1937. Chart XII shows the distribution of the 617 items by this sensitivity index.

When this index of sensitivity is used as a tool of analysis, and the depression reactions of different items or groups of items among the 617 wholesale commodities are compared, certain characteristics of the price structure become apparent. For example, the wholesale prices of foods have, on the whole, shown a high degree of sensitivity to depression, clothing a lesser degree of sensitivity, and items other than these two have, as a group, been still less sensitive. Chart XIII gives the items in each of these groups distributed according to the sensitivity of their prices to depression.

An outstanding characteristic of the price structure is brought out by this type of analysis, namely that on the whole prices are less sensitive as goods move toward the user. In case after case the price of a fabricated product is less sensitive than the price of its raw material. Flour is less sensitive than wheat and bread at retail is least sensitive of all. Cotton yarn is less sensitive to depression than cotton, most cotton cloths are less sensitive than cotton yarn, cotton clothing at wholesale than cotton cloth, and cotton clothing at retail less sensitive still. Series of this type are set forth in table I. Chart XIV shows the tendency toward less sensitivity with more fabrication by com-

paring the ratio of sensitivity of the later stage to that in the preceding stage. The cases are distributed according to the ratio of the sensitivity at the subsequent stage to the sensitivity of the corresponding item

CHART XIII

**DISTRIBUTION OF  
WHOLESALE PRICE ITEMS IN GROUPS  
BY INDEX OF SENSITIVITY**

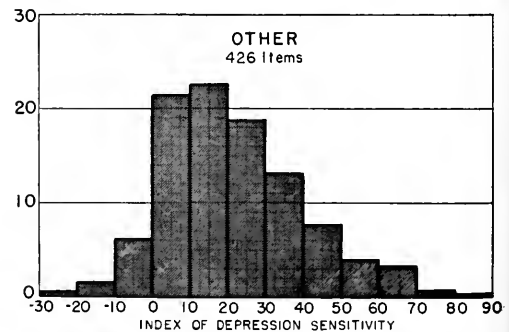
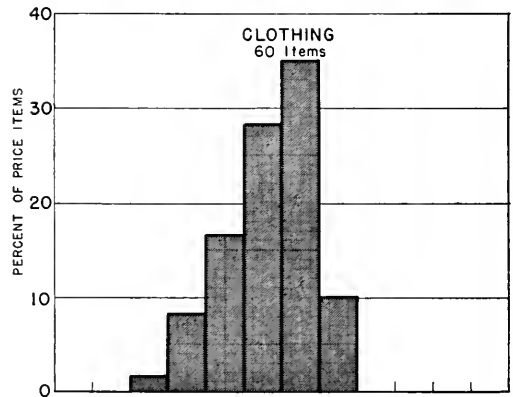
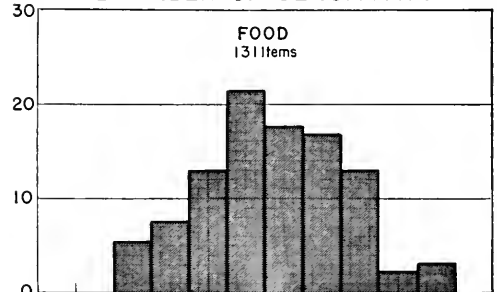
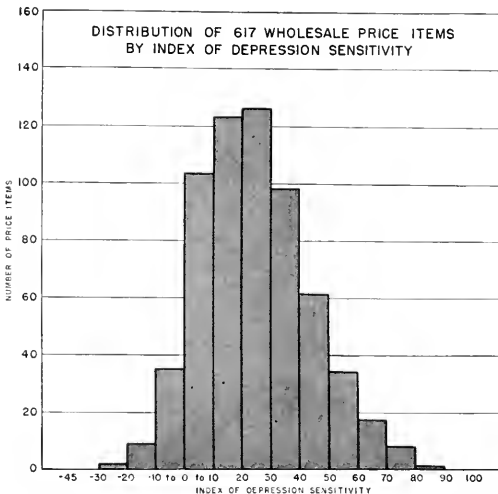


CHART XII



Source: Based on data given in appendix 2, table 1.

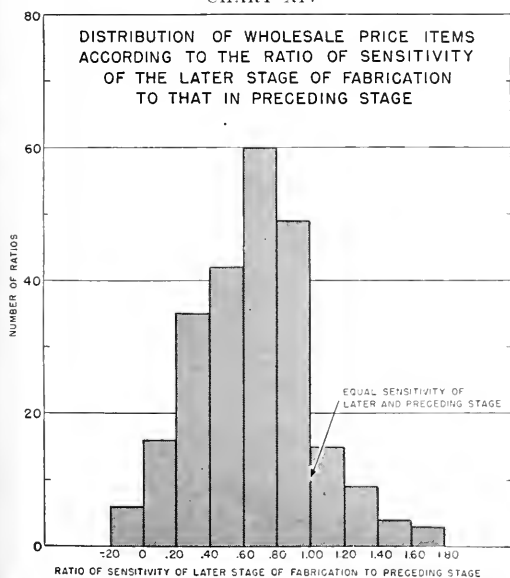
Source: Based on data given in appendix 2, table 1.

at the preceding stage. In 208 cases the subsequent stage showed less sensitivity than the preceding stage and in only 31 cases was price more sensitive to depression in the subsequent stage. A clear example of the latter situation is found in the case of gasoline at wholesale, which shows more sensitivity than petroleum. The case of cold rolled steel is a mixed one, for one raw material, scrap steel, is more sensitive than cold rolled steel, while pig iron, also a raw material for cold rolled steel, is less sensitive. Though there are a few such exceptions, there is a tendency in general toward a gradually increasing insensitivity to depression as the ultimate user is approached.

This same tendency is evident when items are grouped by degree of fabrication, semifinished goods being on the whole less sensitive than raw materials as a group and finished goods being less sensitive than semifinished goods. This is brought out clearly in chart XV which shows the items in each of these groups distributed according to their sensitivity to depression.

When items are grouped by the type of activity which has contributed most to their value, it is apparent that agricultural products, both raw and processed, are most consistently sensitive to depression while goods whose value is largely the product of manufacturing activity tend to be relatively insensitive. Mine and forest products are more diverse in their behavior. This is clearly shown in chart XVI. The division between groups is necessarily somewhat arbitrary. Items are

CHART XIV



classified as dominantly agricultural when the bulk of their value is farm produced. Thus not only wheat and hogs but also flour and pork are so classed since in each case the value added in processing is a small proportion of the value of the product, 18 and 13 percent respectively in 1929, for the industries as a whole. On the other hand, bread at wholesale is classed as predominantly a manufactured product since only approximately 19 percent of the wholesale value can be attributed to the farm on the basis of the flour, butter, eggs, and milk used in its manufacture. While the classification is necessarily crude, it does involve important distinctions as is evident from the chart. Only 10 percent of the agriculture dominated items show a

CHART XV

**DISTRIBUTION OF WHOLESALE PRICE ITEMS IN GROUPS BY DEGREE OF FABRICATION BY INDEX OF SENSITIVITY**

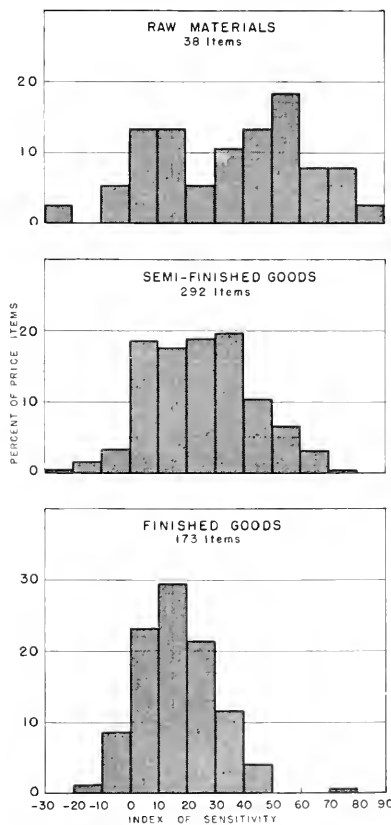
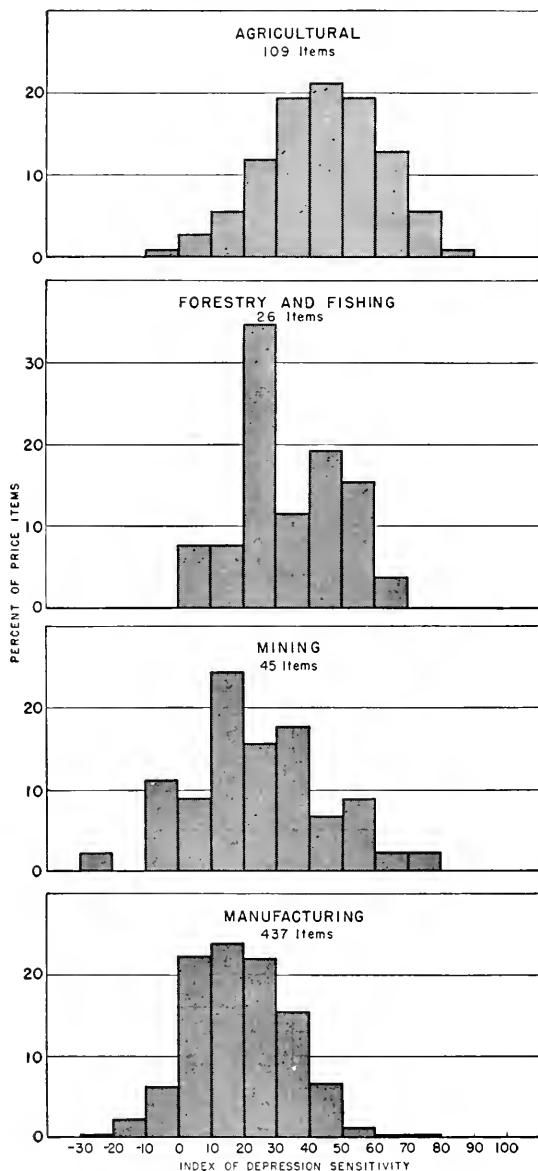
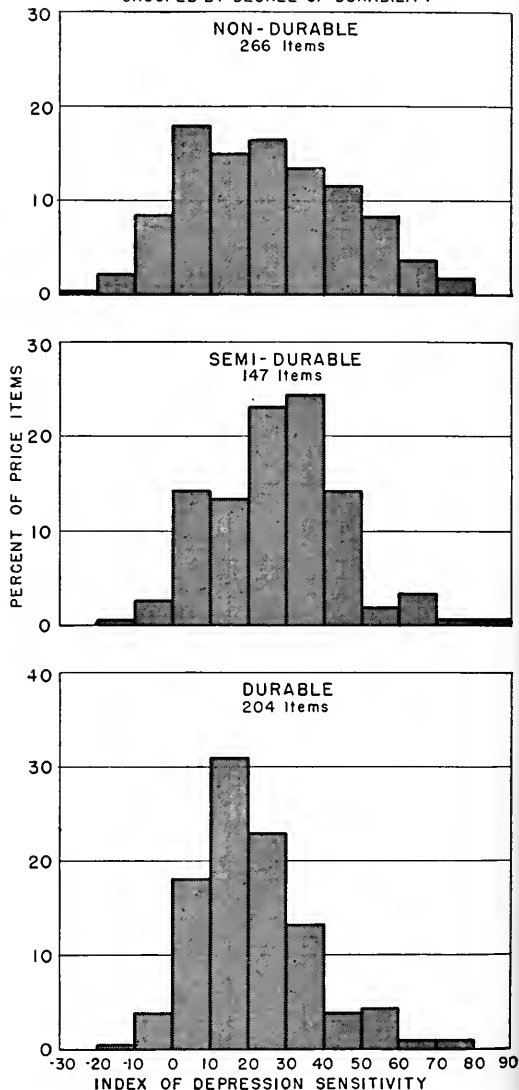


CHART XVI  
DEPRESSION SENSITIVITY OF  
WHOLESALE PRICE ITEMS  
GROUPED BY TYPE OF ACTIVITY



Source: Based on data given in appendix 2, table I.

CHART XVII  
DEPRESSION SENSITIVITY OF  
WHOLESALE PRICE ITEMS  
GROUPED BY DEGREE OF DURABILITY



Source: Based on data given in appendix 2, table I.



TABLE I.—*Depression sensitivity index of wholesale price items grouped according to degree of fabrication*

FOOD AND TOBACCO					
Wheat.....	54.1	Wheat flour.....	39.6	Bread (average of 5 cities).....	13.6
Rye.....	59.5	Rye flour.....	39.7	Other wheat products <sup>1</sup> .....	18.6
Oats.....	52.0			Oatmeal.....	42.6
Corn.....	71.5			Corn products <sup>2</sup> .....	43.1
Corn.....	71.5	Hogs, cattle and sheep.....	50.4	Meat products <sup>3</sup> .....	45.8
Oats.....	52.0	Poultry.....	28.4	Hides and skins.....	67.6
Alfalfa hay.....	39.4			Dressed poultry.....	27.1
Other hay.....	29.3			Eggs (average of 7 cities).....	30.8
Alfalfa hay.....	39.4			Dairy products <sup>4</sup> .....	27.5
Other hay.....	29.3			Refined sugar.....	17.7
Raw sugar.....	18.2			Molasses.....	8.8
Peanuts.....	61.2			Peanut oil.....	57.8
Beans.....	56.6			Peanut butter.....	42.7
Cocoa beans.....	25.4			Canned baked beans.....	27.2
Tobacco.....	68.6			Powdered cocoa.....	11.0
				Smoking tobacco.....	19.2
				Cigarettes.....	10.9
TEXTILES AND LEATHER					
Cotton.....	46.3	Cotton cloth <sup>5</sup> .....	35.9	Cotton housewares <sup>6</sup> .....	32.7
				Cotton knit goods <sup>7</sup> .....	25.2
Wool (imported and domestic) <sup>8</sup> .....	56.8	Wool cloth <sup>1</sup> .....	31.8	Men's cotton clothes <sup>9</sup> .....	22.5
				Cotton thread, twine and rope.....	20.7
Raw silk.....	35.6	Silk yarn, thrown.....	31.2	Blankets.....	34.9
		Silk yarn (domestic and imported) <sup>10</sup> .....	19.3	Men's and boys' clothing <sup>11</sup> .....	32.7
Hides and skins.....	67.6	Wood pulp (4 items) <sup>11</sup> .....	34.0	Carpets <sup>12</sup> .....	25.0
		Rayon.....	22.6	Silk hose, women's.....	32.0
		Leather (sole and side chrome) <sup>13</sup> .....	36.1	Silk hose, men's.....	18.1
				Women's rayon hose.....	27.7
		Harness leather.....	22.4	Shoes <sup>14</sup> .....	18.4
				Traveling bags and suitcases.....	24.2
SOAP, ETC.					
		Vegetable oils <sup>15</sup> .....	44.3	Leather belting.....	7.4
				Harness.....	10.5
PETROLEUM PRODUCTS					
Petroleum, Oklahoma, California, and Pennsylvania.....	28.0			Soap (including powder and chips) <sup>16</sup> .....	26.0
				Glycerin.....	56.0
Rubber.....	81.8	RUBBER GOODS		Gasoline <sup>17</sup> .....	33.6
		NEWSPRINT, ETC.		Fuel oil, Oklahoma and Pennsylvania.....	41.4
		Wood pulp (4 items) <sup>18</sup> .....	34.0	Paraffin.....	39.4
Flaxseed.....	45.8	LINOLEUM, ETC.		Kerosene, white and standard.....	18.7
		Linseed oil.....	42.4	Cylinder oil, Oklahoma and Pennsylvania.....	22.2
		Linseed meal.....	31.6	Tires and tubes.....	26.0
Portland cement.....	17.4	CONSTRUCTION MATERIALS, ETC.		Other than tires and tubes <sup>19</sup> .....	19.0
Sand.....	13.6			Newsprint paper.....	3.0
Gravel.....	12.6			Wrapping paper.....	0
Mesabi ore.....	3.5	Steel scrap.....	66.0	Linoleum (inlaid and plain) <sup>20</sup> .....	19.4
		Pig iron.....	31.4		
		Foundry iron.....	41.6	Concrete blocks.....	5.0
Copper (electrolytic).....	55.6			Bar iron.....	13.5
Copper.....	55.6			Malleable castings.....	14.0
Tin.....	61.6			Spiegelisen.....	19.2
Lead.....	47.4			Steel billets.....	26.0
				Cold rolled steel.....	35.6
				Cast iron pipe.....	50.7
				Rails.....	1
				Wire and wire products <sup>21</sup> .....	18.9
				Plates <sup>22</sup> .....	19.4
				Skelp, pipe and tubing <sup>23</sup> .....	23.6
				Bars <sup>24</sup> .....	24.5
				Sheets <sup>25</sup> .....	27.0
				Other iron and steel products <sup>26</sup> .....	27.0
				Copper wire, rods and sheets.....	41.3
				Brass wire, rods, tubes and sheets.....	37.5
				Solder.....	56.2
				Lead pipe.....	35.4
				Babbitt metal.....	42.9
Lead.....	47.4	White lead.....	9.3	White paint.....	17.5
See footnotes at end of each page.					

See footnotes at end of table.

TABLE I—Continued  
CONSTRUCTION MATERIALS, ETC.—Continued

Zinc.....	52.8	Zinc sheets.....	16.0
Sulphur.....	0	Sulphuric acid.....	1.2
Borax.....	12.3	Boracic acid.....	11.6
Sisal.....	57.2	Sisal rope.....	20.8
Hemp.....	61.2	Manilla rope.....	21.6
Jute.....	40.6	Jute yarn.....	22.5
		Burlap.....	30.8
		Binder twine.....	28.5

Source: Based on table I, of appendix 2.

NOTE.—Where average indexes are indicated by reference to the footnotes, they are straight arithmetic averages of the sensitivity indexes for the items noted, without any adjustment for relative weight.

<sup>1</sup> Includes soda crackers, pretzels, sweet crackers, macaroni, and wheat cereal.

<sup>2</sup> Includes hominy grits, two items for corn meal, corn oil, corn starch, glucose, laundry starch, and corn cereal.

<sup>3</sup> Includes hogs, cows, steers, calves, sheep and lambs.

<sup>4</sup> Includes items under meats in appendix 2, table I, and oleomargarine, but excludes dressed poultry.

<sup>5</sup> Includes butter, cheese, milk: New York, San Francisco, Chicago; and evaporated milk.

<sup>6</sup> Includes osnaburges, light drill, print cloth (2 quotations), brown sheeting, ticking, wide duck, denim, heavy drill, flannel hedge, bleached sheeting, muslin, sheeting percale, percale, muslin No. 4, gingham, toweling, madras shirtine, damask.

<sup>7</sup> Includes cotton blankets, colored cotton blankets, pillow cases, table cloths.

<sup>8</sup> Includes men's cotton hose, women's union suits, men's cotton underwear, and men's union suits.

<sup>9</sup> Includes overalls, soft collars, men's dress shirts, work shirts, men's work trousers, dress shirts, stiff collars.

<sup>10</sup> Includes worsted suitine, uniform serge, heavy overcoating, suiting serge, wool broadcloth, bleached flannel, wool crepe, 7-ounce flannel, Sicilian cloth.

<sup>11</sup> Includes indexes for boys' knickers, top coat (2 quotations), men's 4-piece suits, men's 3-piece suits, boys' 4-piece suits, overcoats, and men's wool underwear.

<sup>12</sup> Includes axminster carpets, Brussels carpets, and Wilton carpets.

<sup>13</sup> Includes the items listed under "shoes" in appendix 2, table I.

<sup>14</sup> Includes coconut oil, palm kernel oil, palm nler oil, and cottonseed oil.

<sup>15</sup> Includes natural gasoline, Oklahoma and Eastern and California gasoline.

<sup>16</sup> Includes men's rubber heels, rubber hose, men's rubbers and women's rubber heels.

<sup>17</sup> Includes wire rods, wire nails, wire, and woven wire fence.

<sup>18</sup> Includes steel plates, terneplate, and tin plate.

<sup>19</sup> Includes skelp, boiler tubes, galvanized pipe, and sewer pipe.

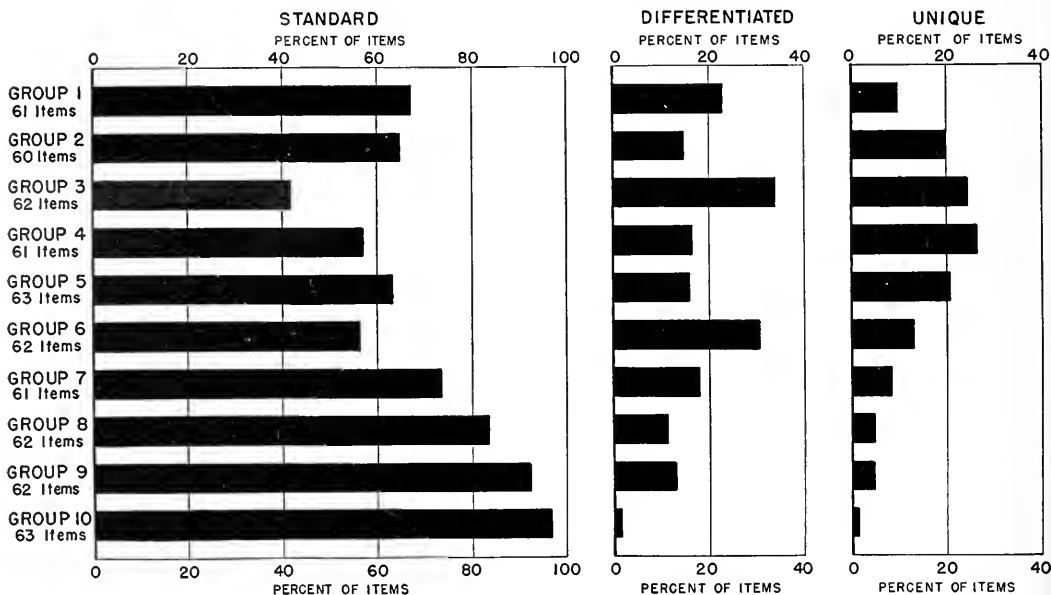
<sup>20</sup> Includes reinforced bars, cold finished bars, merchant bars, and angle bars.

<sup>21</sup> Includes auto body sheets, steel sheets, annealed sheets, and galvanized sheets.

<sup>22</sup> Includes radiators, galvanized iron tubs, galvanized iron pans, large rivets, plow bolts, steel barrels, merchant bolts, track spikes, tractor bolts, and butts.

CHART XVIII

## STANDARD, DIFFERENTIATED AND UNIQUE COMMODITIES IN TEN DEPRESSION SENSITIVITY GROUPS



Source: Based on data given in appendix 2, table I.

sensitivity less than 20 points while 90 percent show a greater sensitivity than this. Clearly the area of price sensitivity in the national economy is agriculture while manufacturing, except for the processing of agricultural products, is relatively insensitive. The relative insensitivity of retail prices has already been noted.

A further light is thrown on the structure of prices by grouping items according to their durability and indicating their depression sensitivity. This is done in chart XVII which makes it clear that the prices of durable are less sensitive than are the prices of semi and non durable goods.

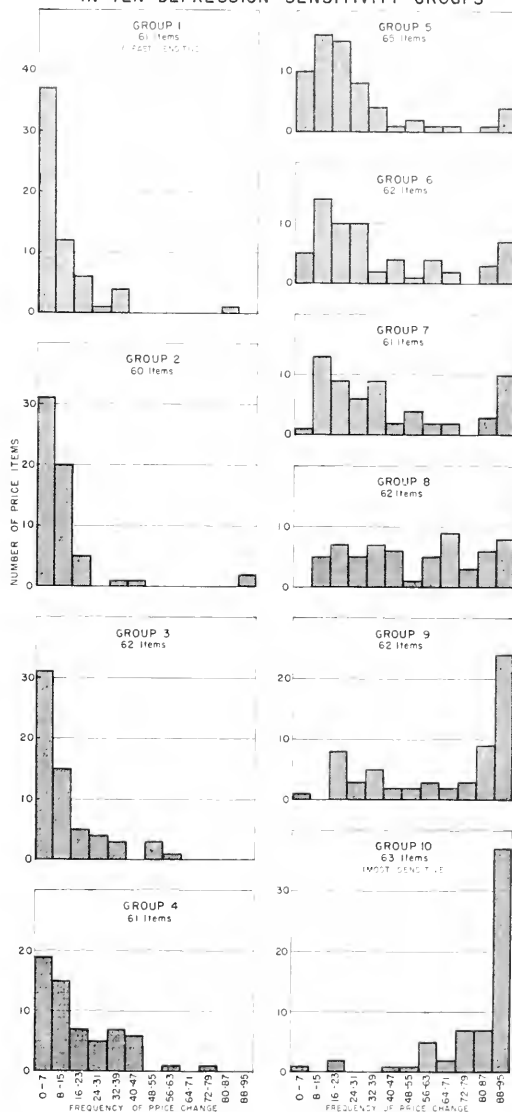
Insensitivity to depression also appears to be associated with the degree of differentiation between the products of different producers. Some goods are so standard that the product of any particular producer is interchangeable with that of many other producers. Once the cotton or wheat farmer has sold his crop it becomes absorbed into the market and ceases to be distinguishable from the cotton or wheat of many other farmers producing the same grade. At the other extreme are the products which are so characteristic of their particular producers that the product of one producer can be clearly distinguished from the product of another. A Ford, a Chevrolet, and a Plymouth are sufficiently distinct from each other physically so that no one should have difficulty in distinguishing them. The product of each auto producer is unique even though the producers compete with each other in meeting the same set of consumer wants. Between the items which are clearly standard and those which are clearly unique lie many borderline cases which may be designated as differentiated. Sometimes the physical characteristics of the product are such as to take the article out of the standard class and yet do not justify classing the product as unique. In other cases the producer, through trade names and advertising, has brought about in the minds of consumers a significant degree of differentiation of his product from that of other competing producers. While no clear cut lines can be drawn between these three types of goods, it is possible to classify commodities roughly into standard, differentiated, and unique.

When goods are so classified, it at once becomes clear that the wholesale prices of standard goods are on the whole more sensitive to depression than the prices of differentiated goods and both are more sensitive than the prices of goods classed as unique. This is brought out in chart XVIII in which the 617 wholesale items are divided into 10 groups according to depression sensitivity and within each group are subdivided to indicate the degree of differentiation. Standard products make up virtually the whole of groups 8, 9, and 10 which contain the items most sensitive to depression. The bulk of the differentiated and unique products appear at the

other end of the scale of sensitivity in groups 1, 2, and 3. A large number of standard items, however, were highly insensitive to depression. These are listed in table II.

CHART XIX

### FREQUENCY OF PRICE CHANGE IN TEN DEPRESSION SENSITIVITY GROUPS



Source: Based on data given in appendix 2, table 1.

TABLE II.—Commodities classified as "standard" in groups 1, 2, and 3 listed according to depression sensitivity index

[Order of sensitivity from lowest to highest]		
Code No.	Name of commodity	Depression sensitivity index
573	Plaster.	-20.6
658	Phosphate rock, 68 percent.	-20.2
651	Potash, iodine.	-18.3
336	Cotton thread, 6-cord, white, 100 yards.	-18.2
599	Arsenic, powdered arsenious oxide.	-13.5
661	Potash, muriate, 80-85 percent K. C. L.	-13.3
662	Sulphate of potash, 90-95 percent.	-11.3
646	Iodine, resublimed.	-10.8
760	Matches, nonsafety.	-10.2
345	Coal.	-8.8
644	Epsom salts, in barrels.	-7.1
598	Coal-tar products, anilin oil.	-6.6
565e	Glass, plate, polished.	-6.1
761	Matches, safety.	-5.6
597	Ammonia, aqua.	-5.0
629	Soda sulphide, 30 percent crystals.	-4.3
650	Phenol, carbolic acid.	-4.0
343	Coal.	-3.9
469	Aluminium, 98-99 percent.	-3.8
596	Ammonia, anhydrous.	-3.6
602	Coal-tar products, benzene.	-3.0
624	Salt, sodium chloride.	-2.6
344	Coal.	-2.2
131	Rauisins.	-1.4
536	Barytes, ground.	-1.8
541	Lampblack.	-1.6
653	Soda phosphate.	0
726	Paper, wrapping, manila, jute.	0
628	Sodium silicate, 40 degress.	0
587	Acid, nitric, 42 degress.	0
609	Coal-tar products, black.	0
590	Coal-tar products, salicylic acid.	0
630	Sulphur, crude.	0
607	Calcium carbide.	0
474	Nickel-electrodes, 98-99 percent.	0
611	Coal-tar products, indigo, 20 percent, paste.	0
585	Carbon dioxide, liquid.	0
439	Rails, steel.	1
581	Crushed stone, 1½ inch.	1.3
610	Coal-tar products, brown colors, sulphur.	1.4
648	Opium.	1.4
402	Bar iron, refined, per pound.	1.6
544	Chrome yellow.	1.6
592	Acid, sulphuric, 66 degress.	1.2
586	Acid, muriatic, 20 degress.	1.2
598	Ankle bars, steel.	1.4
499	Boiler tubes, cold-drawn steel.	1.4
660	Manure salts, 20 percent.	1.1
626	Sodium bicarbonate.	1.6
176	Salt, 280-pound barrels.	1.6
542	Paint, prussian blue.	2.2
415	Sanitary cans, tin.	2.0
436	Pipe, steel, galvanized.	2.0
759	Cigar boxes, veneer.	2.1
622	Soda, carbonate, sal.	2.2
607	Cement roofing tile, 9 x 15 inches.	2.4
744	Paper, newsprint, rolls.	3.0
654	Alkaloids, strychnine.	3.2
53	Onions.	3.4
425e	Iron ore.	3.5
627	Soda, caustic, 76 percent.	3.6
657	Whiting, imported chalk.	3.7
657	Acetate, butyl.	3.8
608	Calcium, chloride, 73-75 percent.	4.1
435	Pipe, steel, ¾-inch.	4.1
330	Artificial leather, 17½ ounces.	4.2
620	Potash, caustic, 88-92 percent.	4.5
772	Shipping cases, rough, pine.	4.8
655	Zinc chloride, granular.	4.8
497	Concrete blocks, plain, 8 x 8 x 16 inches.	5.0
628	Soda ash, 68 percent.	5.2
659	Kainit, 12.4 percent.	5.6
128	Currants, dried, 50-pound box.	5.6
625	Salt cake, ground.	5.6
449	Peroxide of hydrogen, 4 ounce bottle.	6.0
550	Lithopone.	6.7
556	Turpentine.	6.7
331	Artificial leather, 7 ounces.	6.8
588	Bone black, powdered.	7.2
225	Leather belting, 1 inch.	7.4
570	Lime, building.	7.8
393	Alcohol, denatured, 188 proof.	8.0
619	Oil, pine, distilled.	8.0
613	Coppers.	8.6
545	Ethyle acetate, anhydrous.	8.7
543	Chrome green, light.	8.8
171	Molasses, per gallon, average sugar content.	8.8
595	Aluminum sulphate.	8.9
132	Bananas.	9.0
663	Soda, nitrate, chili salt peter.	9.2
582	Zinc, oxide.	9.3
548	Lead, carbonate, white, in oil.	9.3
635	Citric acid, crystals.	9.6
337	Shoe thread, linen, per pound, 10's.	9.8
638	Alkaloids, caffeine.	9.8
423	Locks, 3½-inch sets.	11.2

TABLE II.—Commodities classified as "standard" in groups 1, 2, and 3 listed according to depression sensitivity index—Contd.

Code No.	Name of commodity	Depression sensitivity index
540	Iron oxide, black.	11.3
43	Milk, 3.5 percent.	11.4
544	Acid, boric.	11.6
571	Lime, hydrated.	11.8
604	Borax, crystals, granulated.	12.3
346	Coal.	12.3
603	Bleaching powder.	12.5
632	Coal-tar product, toluene.	12.5
508	Wall tile, glazed.	12.6
599	Oravel, ton.	12.6

Source: Based on appendix 2, table 1. The code number given for each item in this and subsequent tables refers to the code number attached to the particular item by the Bureau of Labor Statistics.

*Depression sensitivity and degree of administrative control.*—Insensitivity to depression is thus clearly associated with a number of factors, closeness to the ultimate user, high degree of fabrication, manufacturing activity, durability, and a high degree of product differentiation. Such insensitivity is also closely associated with the degree to which prices are dominated by administration. In chart XIX the wholesale-price items are divided into 10 groups according to their depression sensitivity and the frequency of price change is indicated. There is a clearly marked progression from the highly insensitive prices in group 1 which change infrequently to the highly sensitive prices in group 10 which change with great frequency.

*Depression sensitivity and tariffs.*—One more factor needs to be considered, the possible effect of tariffs upon price sensitivity. The 617 wholesale items were classified according to the ratio of the tariff rates on each item to the average of the American wholesale price from 1930 to 1936. The results of this classification compared with depression sensitivity are shown in chart XX. Again the items are divided into 10 sensitivity groups and distributed within each group according to the magnitude of the tariff. From this chart it is clear that there is no general relation between insensitivity to depression and amount of tariff. Over 24 percent of the items in the insensitive groups 1, 2, and 3 are without tariff protection while only 16 percent of the items in the most sensitive groups 8, 9, and 10 are without tariff protection. If anything, the sensitive items appear to have somewhat more tariff protection than the insensitive items. This does not mean that the tariff does not contribute to the insensitivity of certain items but it does mean that the tariff is not a major explanation of price insensitivity. How account for the differential sensitivity of prices to depression?

#### Basic Factors in Depression Insensitivity of Price

In the preceding paragraphs the wide differences in the sensitivity of prices to depression has been indicated

and an attempt has been made to relate the degree of sensitivity to different characteristics of goods on the market. Depression sensitivity has been found to be associated, on the whole, with raw materials, with agricultural products, with market-dominated prices, with nondurable goods and with standard commodities. On the other hand insensitivity to depression, on the whole, has been found to be associated with fabricated products, with manufactured goods, with administration dominated prices, with durability and with differentiated products. Because of the effect of this differential sensitivity in disorganizing economic activity, it is important to discover, if possible, what forces lie back of it. To find price insensitivity associated with one set of factors and sensitivity associated with another set does not give an adequate explanation of what brings about this differential sensitivity. It is still necessary to seek explanations of this behavior. Can insensitivity be accounted for by the closeness of goods to the ultimate user; by the fact that they are manufactured products; by durability; by product differentiation; or by administrative controls? Or is the explanation to be found in a combination of several of these factors?

Attempts to answer this question have, up to the present, produced divergent explanations and the question is still moot. Yet the accumulating evidence appears to point to administrative controls as the dominant explanation. This is the generally accepted explanation of the insensitivity of prices set by government and of prices set through public utility regulation. There is an increasing literature discussing the theoretical possibility that, when the number of independent and competing producers supplying a particular market is relatively small, administrative controls over price may be exercised without any collusion between separate enterprises and without a single producer dominating the market.<sup>18</sup> The material which follows indicates that the exercise of administrative controls over price can account for most of the cases of depression insensitivity which have been included in the data already presented.

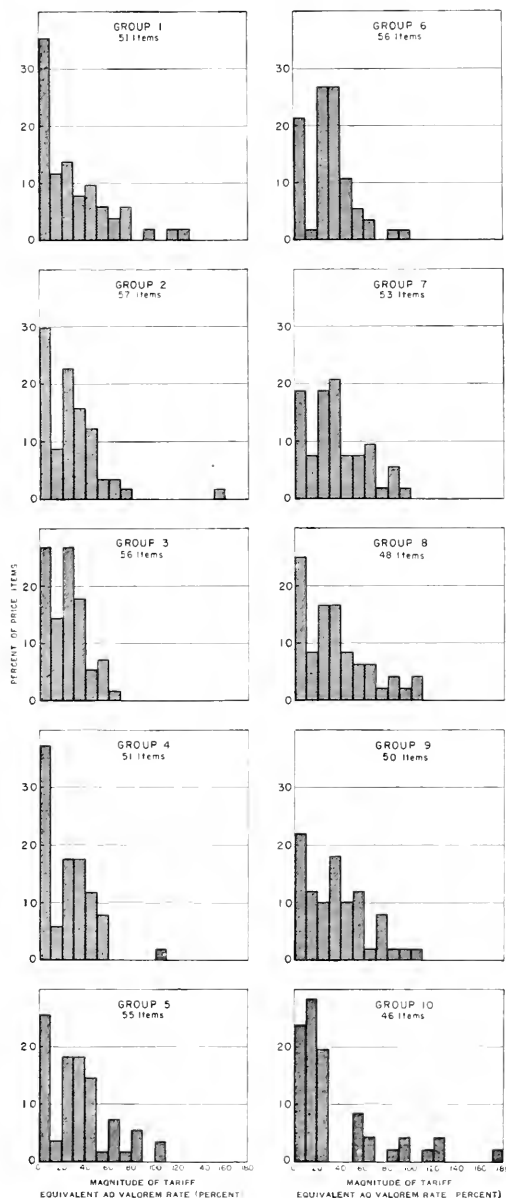
*Relation of monopoly profits.*—Before proceeding to examine the evidence of administrative controls, it is necessary to give clear warning against confusing the presence of administrative controls over price with the presence of monopoly profits.<sup>19</sup> In a particular case the administrative control over price may be sufficient to

<sup>18</sup> Cf. Edward G. Chamberlin, *Theory of Monopolistic Competition*, Cambridge, 1933; Joan Robinson, *Economics of Imperfect Competition*, London, 1933.

<sup>19</sup> Much confusion has arisen in economic discussions because of different meanings attached to the terms competition and monopoly. In earlier discussions the term "monopoly" was used on the whole to refer to situations in which sufficient control would be exercised over price by an individual producer or by a colluding group of producers to make possible monopoly profits, i. e., profits above the rate necessary to induce new investment in other industries not subject to monopoly control. A situation was in general classed as competitive if there was insufficient control over price to make monopoly profits possible. Economists, lawyers, and laymen adopted meanings of this general character for the two terms "monopoly" and "competition."

CHART XX

### MAGNITUDE OF TARIFF IN TEN DEPRESSION SENSITIVITY GROUPS



Source: Based on data given in appendix 5, table 11.

allow monopoly profits to be made. But in innumerable cases where there is some measure of administrative control over prices, there is not the opportunity to make monopoly profits. The bulk of retail distribution is carried on with administered prices. In fact, the one-price system of buying and selling by which prices remain constant over periods of time is one of the major elements contributing to the efficiency of American retail distribution. Yet in spite of the significant degree of control over price on the part of the individual enterprise, which this system reflects, the bulk of retailers are surely not making significant monopoly profits. Similarly, in manufacturing industries a large number of products are sold at a listed or posted price less standard discounts and the price is altered occasionally by altering the discounts or by revising the listed or posted price.<sup>20</sup> Yet in a large number of these cases of administrative control over price, probably in the bulk of them, there is no problem of monopoly profits. In many cases of administered prices the enterprises are actually operating at a loss. Thus it must be clear that administrative control over prices does not necessarily involve monopoly profits. Rather, monopoly profits can arise only in the more extreme cases of administrative control or under special conditions. Whether or not administrative controls over price are sufficiently strong to allow the making of monopoly profits, these controls are important factors affecting the relative sensitivity of prices to depression and the problem of whether resources will be used to the full. On the other hand, only those administrative controls over price which are sufficiently strong to allow the making of monopoly profits are significant to the long-run problem of securing a balanced use of resources. Once administered prices as such are distinguished from monopoly profits as such and the former are recognized as a normal way of doing business, it should be possible to examine the problem of administration in relation to the depression sensitivity of prices in an analytical fashion.

More recently a group of technical economists have redefined the terms monopoly and competition to refer to the elements in a situation rather than to the situation itself. On this basis a particular situation can have some monopoly elements and some competitive elements. Moreover, it is difficult to conceive of a case in practice, however competitive, which did not involve some monopoly elements or however monopolistic which did not involve some elements of competition. Both the retail store keeper and the wheat farmer, through monopolizing a piece of land, are to some extent monopolists while the monopolized post office has to compete with other forms of communication. If the bulk of economic technicians classify every situation as both monopolistic and competitive regardless of whether there is power to make monopoly profits while the laymen continue to classify situations on the basis of the older meanings of the terms, only confusion can result. For this reason the terms are avoided in this report except where no confusion is likely to arise. The term "monopoly profits" is used because it is believed to involve no ambiguity as to its general meaning, though the determination of monopoly profits in any concrete situation has its serious difficulties.

<sup>20</sup> It is well worth noting that much of the pressure for price regulation in the National Recovery Administration was aimed against special discounts to particular buyers which departed from the list price less standard discounts. The Robinson-Patman Act makes illegal the discrimination among buyers involved in special discounts arrived at by bargaining and thereby makes administered prices almost mandatory in this part of the economy.

*Relation to consumer wants.*—A possible explanation of the difference in the depression sensitivity of different prices could theoretically be found in the different importance attached by consumers to different goods. Thus the fact that the price of a particular good failed to decline significantly during the depression might be explained by the fact that consumers required the particular item so strongly that they continued to buy it in much the same volume even though their money incomes were curtailed by the depression. With no significant decline in the volume of sales there would be no particular pressure for a decline in price. On the other hand there would be a fall in the sale of items whose purchase could be postponed by the consumer or that were less significant to his standard of living. If there were no administrative control of price directly or through a restriction of production, the prices of such items could be expected to fall in relation to the items that were more indispensable to the prevailing standard of living. Thus the price of food which is essential to living might be expected to be insensitive to depression, while the price of clothing would be more sensitive and the price of such postponable items as automobiles and agricultural machinery would be the most sensitive to depression.

In actual experience the exact reverse appears to have been the case. In the depression, there was a general tendency, though with many exceptions, for the industries whose sales dropped most to show relatively little price readjustment, while in the industries in which a major price readjustment took place, there was a tendency for consumption to drop least.<sup>21</sup> Likewise, in the recovery period, the industries whose sales were increasing most showed little price rise while those with the least rise in sales showed the greatest rise in price. This behavior is typified in chart XXI which indicates the depression changes in price and in production for each 10 industries which together produce approximately half of the value of products of all manufacturing

<sup>21</sup> In the National Industrial Conference Board Bulletin, February 20, 1939, the claim is made that this conclusion has not much practical value because the relation between changes in price and production for individual commodities is much more heterogeneous than for whole industries.

The evidence presented in the bulletin shows that even for individual commodities there is a clearly marked tendency, with of course many exceptions, for a drop in production between 1929 and 1933 to be associated with a smaller drop in prices and a large drop in prices to be associated with a small drop in production. This tendency is clearly indicated in the attached table which was compiled directly from the bulletin.

Number of items listed in NICB Bulletin falling into different categories of price and production change between 1929 and 1933

	With production drop of—		
	More than 50 percent	25 to 50 percent	Less than 25 percent
Items with price drop of less than 25 percent.....	40	25	18
Items with price drop of 25 to 50 percent.....	23	26	29
Items with price drop of more than 50 percent.....	11	24	68

and agricultural enterprises. It is evident that the relative stability of the prices of agricultural implements, automobiles, and steel between 1929 and 1932 was not due to stability in the demand for the product, and that the relative instability of the prices of textile products, food, and agricultural commodities was not due to the instability in the demand for the product. Thus differences in the stability of the demand for particular products does not appear to be the primary explanation for the differences in price sensitivity.<sup>22</sup>

*Relation of the degree of fabrication.*—Likewise the difference in degree of fabrication does not appear, in itself, to be the primary explanation of differences in price sensitivity. The prices of most raw materials, but not all, are nonadministrative in character, and most,

If the group of chemical and drug items for which the price data are known to be very unsatisfactory and for many of which there are no comparable data on the production of individual items for the years 1929 and 1933 in the sources used in the bulletin study, are excluded the relationship is even more clearly brought out as indicated in the table below:

*Number of items listed in NIBP Bulletin, other than chemicals and drugs falling into different categories of price and production change from 1929 to 1933*

	With production drop of—		
	More than 50 percent	25 to 50 percent	Less than 25 percent
Items with price drop of less than 25 percent.....	38	18	8
Items with price drop of 25 to 50 percent.....	22	18	24
Items with price drop of more than 50 percent.....	9	22	66

When, as in this report, the analysis is made in terms of industries instead of individual commodities the influence of special factors which effect the price and production relationships for particular commodities tends to be partially offsetting and the basic general factors tends to dominate the relation between price and production. Examination of the data provided by the National Industrial Conference Board brings out the striking extent to which, for industries as a whole, there is a clearly defined tendency, with exceptions, for industries showing a large drop in production between 1929 and 1933 to show a small drop in prices and industries with a small drop in production to show a large drop in prices.

This same analysis can be stated in technical economic terms. The trained economist speaks of a demand curve which indicates the amount of a given commodity which a consumer or group of consumers will buy at each of a series of different prices if they have a given volume of income (stated in terms of its real buying power) and if the prices of other commodities are assumed the same. He also speaks of a shift in the demand curve which may result from a change in the volume of consumer income. This means that with a change in consumer income there will be a change in the volume of the particular commodity demanded at each level of its price. For most commodities an increase in income will involve an increase in the volume demanded at each given price so that when a demand curve at one level of income is plotted with standard coordinates and price indicated along the vertical axis, the demand curve corresponding to a higher level of income will be above and to the right of the first curve and the curve corresponding to a lower level of income will fall below and to the left of the initial curve.

If the difference in the relative depression sensitivity of prices for different items were due primarily to the structure of consumer wants, it would be expected that the items with insensitive prices would tend to be those with highly elastic demand curves and/or with demand curves showing little sensitivity to changes in consumer income. This would include the non-durable basic necessities such as food and to a less extent clothing. Conversely, items with a high degree of depression sensitivity in price would be those such as automobiles and other durable consumer goods which have an inelastic demand curve, a demand curve highly sensitive to depression, or a combination of both. Since food as a whole, and to a less extent clothing, show depression sensitivity in price and durable consumer goods show a considerable degree of depression insensitivity of price, the differential price sensitivity cannot be attributed to the structure of wants.

Such a conclusion should not be confused with the conclusion that where an individual business is in a position to control its price to a greater or less extent, there is less business inducement to lower price where the demand curve for the product is inelastic than where it is elastic.

TABLE III.—Raw material commodities classified according to order of depression sensitivity

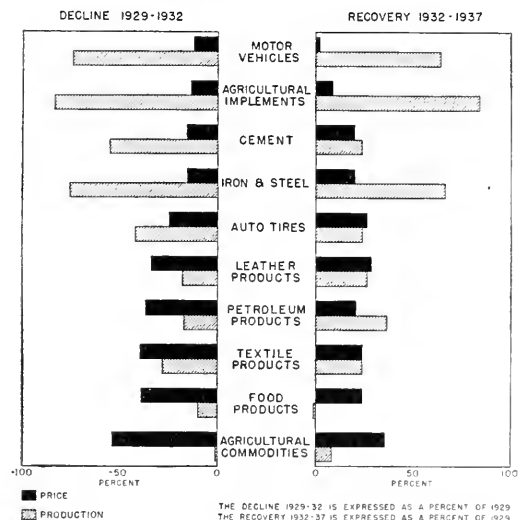
(Order of sensitivity from lowest to highest)

Code No.	Name of commodity	Depression sensitivity index
658	Phosphate rock.....	-20.2
499	Aluminum.....	-3.8
536	Barytes.....	-3.8
630	Crude sulphur.....	0
581	Stone, crushed.....	.3
456	Messabi ore.....	3.5
557	Whiting.....	3.7
663	Sodium nitrate.....	9.2
346	Soft coal, mine run.....	12.3
406	Gravel.....	12.6
579	Sand.....	15.6
348	Soft coal, screenings.....	13.6
546	Copalgum.....	24.0
406	Hay.....	24.3
50	Timothy seed.....	34.0
296c	Raw silk.....	35.6
476	Mercury.....	37.4
39	Alfalfa hay.....	39.4
329	Jute.....	40.6
49	Flaxseed.....	45.8
24c	Cotton, middling.....	46.3
42	Hops.....	47.4
161	Copra.....	47.9
4	Oats, No. 2, white.....	52.0
47	Alfalfa seed.....	52.2
488	Zinc pig.....	52.8
59c	Wool, domestic.....	53.1
6c	Wheat.....	54.1
1	Barley, malting.....	55.2
5	Rye, No. 2.....	59.5
65c	Wool, foreign.....	60.4
551	China-wood oil.....	61.8
445	Steel scrap.....	66.0
3c	Corn.....	71.5
48	Clover seed.....	72.4
470	Antimony.....	73.9
751c	Rubber, crude.....	81.8

Source: Based on data in appendix 2, table I, National Resources Committee classification.

### CHART XXI

#### PRICE AND PRODUCTION CHANGES DURING DEPRESSION AND RECOVERY FOR 10 MAJOR INDUSTRIES



Source: See appendix 1, section 22.

but not all, raw materials show relative price sensitivity. When a comparison is made between the raw materials showing the greatest and those showing the least price sensitivity during the depression, the effect of administration is apparent. In table III all of the items from the Bureau of Labor Statistics list which are raw materials requiring fabrication before use are listed according to their depression sensitivity. At the bottom of the list, showing most sensitivity, are the agricultural products each with hundreds of thousands of separate producers, steel scrap gathered from thousands of sources and the metals utilizing copper, tin, and zinc. At the very top of the list, showing little or no downward adjustment to depression conditions, are iron ore, aluminum, crude sulphur, phosphate rock, barytes, and crushed stone, the production of each of which is dominated by a few companies.<sup>23</sup> It seems clear that raw materials as a group are sensitive in price not so much because they are raw materials as because so many of them are produced by a very large number of producers under conditions in which no individual producer can affect the price by limiting his own production. In the few cases where the production of a raw material is dominated by a few producers the prices show as great insensitivity as products other than raw materials.<sup>24</sup>

A similar comparison for semifinished and finished goods has been attempted. The analysis is complicated, however, by the influence of the sensitivity in the raw materials where these make up a large part of the value of the product. Thus the price of beef is dominated by the price of cattle so that the depression sensitivity of the price of cattle is transferred in large part to the price of meat, and a comparison between the sensitivity of meat prices and concentration in the meat packing industry is misleading. The appropriate comparison would be between concentration in the packing industry and packers' margins—the difference between the price of the steer on the hoof at the stock yards and the sum of the wholesale prices of the separate parts after the packing process has been completed. This packers' margin is the real "price" paid for the function of meat packing. In order that price comparisons among semifinished and finished goods may have validity they have been limited to products whose value is derived predominantly from manufacturing activity and only to a secondary degree from the raw material used in production.

A further problem arises from the fact that the available figures on manufacturing concentration are of

national scope and apply to rather broadly classified industries. This means that their significance as indexes of concentration in relation to the market is limited to industries in which the bulk of the producers have access to a national market. Fresh bread, for example, is necessarily produced for a relatively local market while the weight of cement prevents plants at one end of the country from supplying markets at the other end in an economical fashion. In these industries, figures on concentration for the country as a whole cannot throw light on the actual degree of concentration existing in particular markets. Likewise the broad census classification often combines a variety of distinct industries under one classification.

In order to avoid these various difficulties, the list of census industries has been reduced by a crude classification to those industries which are relatively homogeneous in product, where at least a third of the value of the product is believed to come from manufacturing activity, where the product itself was believed to be produced for a national or international market and where reasonably reliable data were available as to the price of the product. Thirty-seven census industries met this requirement. When the depression drop of prices in these industries is compared with the proportion of value product in each which was produced by the four largest enterprises, a rough relation is apparent between concentration and price insensitivity. This is indicated in chart XXII. As in the case of raw materials, the semifinished and finished goods which are less sensitive appear on the whole to be those whose production is dominated by a relatively few enterprises.

The durability of goods is often offered as an explanation of the depression insensitivity of prices. It has already been shown that there is a tendency for durable goods as a group to be less sensitive than nondurable goods. However, when the individual items are compared it at once becomes clear that the durable goods whose production is relatively unconcentrated are highly sensitive and that it is only the concentrated durable goods whose prices are insensitive, just as are the prices of concentrated nondurable goods. The tendency for nondurable goods as a group to be sensitive and durable goods as a group to be more insensitive appears to reflect the agricultural character of a large proportion of the nondurable goods and the very large number of producers supplying such products. This is brought out in table IV which gives all the durable and nondurable goods among the 617 wholesale items which showed an extremely high sensitivity (greater than 50) or an extremely low sensitivity (less than 10) arranged in order of increasing sensitivity.

Among the basic durable materials, such items as steel scrap, lumber, copper, and tin which are available from many sources, show a high degree of price sen-

<sup>23</sup> Crushed stone production is not dominated by a few companies for the country as a whole but production is mostly for very local consumption and in most localities crushed stone production is dominated by one or a few companies.

<sup>24</sup> Copper is a significant exception. The bulk of copper is mined in the United States by a few companies. The flexibility of copper prices appears to be due to the direct competition of foreign producers, particularly the African mines, and to the availability of supplies of reclaimed copper.



TABLE IV.—Durable and non-durable wholesale price items showing a depression sensitivity index of greater than 50 and less than 10

DURABLE ITEMS					
High sensitivity (index greater than 50)			Low sensitivity (index less than 10)		
B. L. S. Code No.	Name	Index of sensitivity	B. L. S. Code No.	Name	Index of sensitivity
434	Cast iron pipe.....	50.7	399	Angers.....	0
511	Yellow pine lath.....	52.8	474	Nickel, cathode.....	0
488	Zinc, pig.....	52.8	439	Steel rails.....	.1
516	Douglas fir, B.....	53.4	581	Stone, crushed.....	.3
487	Copper wire.....	53.5	418	Files.....	.5
472	Copper electrolytic.....	55.6	402	Bar iron, Pittsburgh.....	.5
515	Douglas fir #1c.....	55.8	398	Angle bars.....	1.4
483	Solder.....	56.2	495	Bor tubes.....	1.4
522	Yellow pine flooring.....	58.6	417	Chisels.....	1.8
484	Tin.....	61.6	415	Garbage cans.....	2.0
445	Steel scrap.....	66.0	436	Galvanized pipe.....	2.0
702	Plate glass, mirror.....	72.6	507	Garage tires.....	2.4
470	Antimony.....	73.9	443	Crosscut saws.....	3.0
			456	Vises.....	3.0
			425e	Messabi ore.....	3.5
			435	Black steel pipe.....	4.2
			710	Vacuum cleaners.....	4.4
			676	Carvers.....	4.7
			370	Engine, 3-horsepower.....	4.8
			497	Concrete blocks.....	5.0
			561	Wallboard.....	5.6
			380	Corn planter.....	6.0
			444	Hand saws.....	6.0
			687	Electric ironers.....	6.0
			494	Sinks.....	6.5
			393	Grain thresher.....	7.0
			570	Quicklime.....	7.8
			397	Grain binder.....	7.8
			391	Spades.....	8.0
			381	Tractor plow.....	8.4
			375	Hoes.....	8.6
			385	Hand rakes.....	9.4
			421	Corn knives.....	9.4
			681	Felt base, part carpet.....	9.5
			698	Electric range.....	9.5
			388	Cream separator.....	9.7
			390	Shovels.....	9.7
			686	Electric irons, plain.....	9.8

## NONDURABLE ITEMS

184	Corn oil.....	50.2	585	Carbon dioxide liquid.....	0
748	Wood pulp, sulphate.....	51.5	587	Nitric acid.....	0
4	Oats, No. 2, white.....	52.0	590	Sulphuric acid.....	0
47	Alfalfa seed.....	52.2	607	Calcium carbide.....	0
349	Beehive coke.....	52.5	628	Sodium silicate.....	0
355	Fuel oil, Oklahoma.....	52.6	630	Crude sulphur.....	0
145	Bacon.....	53.1	746	Wrapping paper.....	0
737	Cottonseed meal.....	53.8	781	Flat tobacco.....	0
6c	Wheat.....	54.1	136	Canned peas.....	.1
19c	Sheep.....	54.6	610	Coal tar, brown.....	.4
173	Ole oil.....	55.0	648	Opium.....	.4
1	Barley, malting.....	55.2	580	Muriatic acid.....	1.2
188	Soybean oil.....	55.8	592	Sulphuric acid.....	1.2
645	Glycerin, c. p.....	56.0	660	Manure salts, 20%.....	1.5
32	Beans, dried.....	56.6	136	Plain soda.....	1.6
170	Lard.....	56.8	176	Salt.....	1.6
150	Pork, fresh, com-pressed.....	57.1	626	Sodium bicarbonate.....	1.6
			759	Cigar boxes.....	2.1
187	Peanut oil.....	57.8	622	Sal soda.....	2.2
185	Cottonseed oil.....	58.0	744	Newsprint paper.....	3.0
181	Tallow (edible).....	58.8	654	Strychnine.....	3.2
116	Corn meal, yellow.....	59.0	53	Onions.....	3.4
631	Tallow, packets.....	59.8	627	Caustic soda.....	3.6
46	Peanuts.....	61.2	608	Butyl acetate.....	3.8
736	Bras.....	61.6	620	Calcium chloride.....	4.1
531	Chinawood oil.....	61.8	655	Caustic potash.....	4.5
554	Rosin, grade B.....	61.9	625	Zinc chloride.....	4.8
17c	Hogs.....	63.0	601	Soda ash.....	5.6
665	Tankage.....	63.8	128	Crackers, sweet.....	5.6
31	Middlings.....	63.3	623	Dried currants.....	5.6
146	Tobacco, leaf.....	68.0	659	Salt cake.....	5.6
2c	Cured pork belly.....	69.8	649	Hydrogen peroxide.....	6.0
147	Cured pork belly rib.....	71.5	556	Turpentine, south.....	6.7
115	Hominy grits.....	72.4	777	Toilet soap.....	7.3
			177	Canned soup (tomato).....	7.7
			593	Denatured alcohol.....	8.0
			619	Pine oil.....	8.5
			137	Canned spinach.....	8.6
			613	Coppers.....	8.7
			545	Ethyl acetate.....	8.7
			171	Molasses.....	8.8
			595	Aluminum sulphate.....	8.9
			132	Bananas.....	9.0
			663	Sodium nitrate.....	9.2
			635	Citric acid.....	9.6
			638	Caffeine.....	9.8

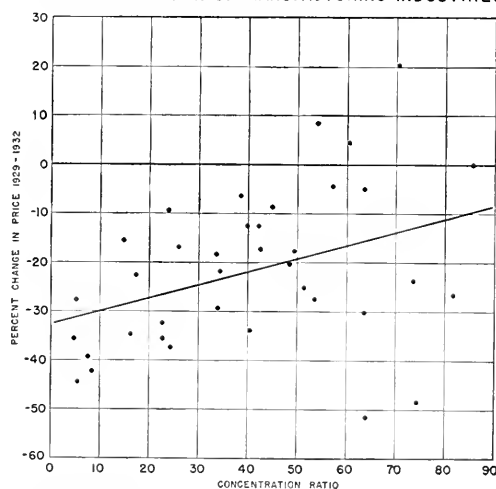
Source: Based on data given in table I of appendix 2.

sitivity, whereas the price of such items as iron ore, iron bars, steel rails, and nickel, whose production is known to be relatively concentrated are highly insensitive to depression forces. No highly fabricated durable goods in the list shows great sensitivity, but the insensitive durable items such as agricultural implements and tools of various sorts are produced in industries known to be relatively concentrated. Among the nondurable goods the sensitive items are, almost without exception, farm or forest products or petroleum and its derivatives, goods in the production of which there is little concentration. On the other hand the production of the nondurable items whose prices are insensitive to depression are on the whole dominated by a relatively few enterprises. An examination of these data can leave little doubt that it is not durability as such that makes for depression insensitivity of price but rather that on the whole the production of durable goods is more concentrated than is that of nondurable goods and that the insensitivity of prices is primarily related to this concentration.

*Primarily a function of administrative controls.*—The main conclusion to be reached from this analysis is that, while many factors influence price insensitivity, the dominant factor in making for depression insensitivity of prices is the administrative control over prices which results from the relatively small number of concerns dominating particular markets. Though depression insensitivity of prices occurs more often in

## CHART XXII

RELATION BETWEEN CONCENTRATION AND DEPRESSION DROP IN PRICES IN 37 MANUFACTURING INDUSTRIES



Source: Appendix 5.

the case of durable goods and fabricated products than in the case of nondurable goods and raw materials, it is just these fields in which production is most concentrated in relation to the available market and prices are most extensively dominated by administrative controls. Where durable goods and fabricated products are supplied by a large number of producers for a single market, their prices tend to be relatively sensitive to depression influences and where the production of nondurable goods and raw materials is concentrated into the hands of a relatively small number of producers, their prices appear to be on the whole relatively insensitive to depression influences.

*Factors underlying administrative controls.*—As a result of the foregoing analysis, it is possible to construct a fairly clear picture of the varying degrees of the depression sensitivity of prices and the factors lying back of this insensitivity. In chapter IV on the geographical structure of production, the flow of goods was described showing raw materials moving through successive stages of fabrication and distribution to the consumer. At each stage the potential market for the particular product tends to narrow down. Wheat can be produced for a world market but fresh bread baked in one place cannot be economically supplied to another place only a few hundred miles away. Thus as goods move from raw materials to finished products the geographical market on the whole tends to narrow down. In a similar fashion the market for a particular raw material narrows down as it becomes more and more fabricated because of the narrowing of alternative functions for which it can be used. Wheat can be used for seed, be fed to chickens or be made into flour, serving any one of the functions implicit in these alternative uses. But once it is made into flour it cannot be used as seed and once the flour has been made into bread it cannot alternatively be used to make crackers or macaroni. Thus there is a tendency for the market for the particular bushel of wheat or bag of flour to narrow down in the successive stages of fabrication.

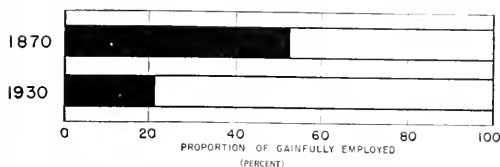
Because of this narrowing down of the market at successive stages both geographically and functionally, it is usually possible for fewer and fewer producers to supply any particular market. It takes a million wheat farmers to supply the wheat market, a few thousand flour mills to supply the flour market and only a handful of bakers to supply some rural town or small city with bread. This same tendency appears in industry after industry: as cotton moves into yarn, into cloth, into clothing, and onto the shelves or racks of the local store; as iron ore moves into pig iron, into steel, into particular standard shapes, and finally into a place in a particular

building; and as timber moves into wood pulp, into paper, into a printed book and onto the counter of a local drug store. Sometimes there is a return flow as the worn-out auto reappears as scrap iron or as the book is collected as waste paper, but on the whole the market for goods at each successive stage tends to be narrower, sometimes geographically, sometimes functionally, and sometimes both.

With this narrowing there is almost necessarily a tendency for the required number of separate producers to be less. While millions of farmers are required to supply the market for food, there may be less than a half dozen grocery stores which are within the economical range of the particular housewife. And as the number of separate enterprises supplying a particular market is smaller the administrative control over prices which can be exercised by each producer tends to increase. The wheat farmer has to take the market price for his grain; the local baker can set his own price and as long as it is not too far out of line with the price set by the grocery store down the street he can usually persuade some customers that his bread is worth the difference, especially if his advertising expenditure is adequate. This narrowing of the market with successive stages of fabrication appears to be a factor in making for administrative control over price and insensitivity of prices to depression.

A second factor making for administrative control and price insensitivity is the large size of the efficient enterprise in many lines of activity. No one has yet shown how corn can be produced and marketed efficiently by an enterprise employing several thousand persons. The efficient farm unit—even a large wheat farm or cotton plantation—is relatively small. On the other hand, no one has shown how a steel mill or an aluminum plant can be operated efficiently by a handful of workers. The efficient steel mill calls for hundreds of workers, and the production of steel through its various processes may involve enterprises employing thousands of workers. All the new pig aluminum produced in the country is produced by only four plants. Thus, administrative control over price not only arises and increases as the market narrows down but it tends to increase wherever efficiency in production requires large enterprises which reduce the number of independent producers required to supply the particular market. On the whole, this reduction in the number of separate producers appears to be a dominant factor in railroading and communication, highly significant in manufacturing, of minor significance in agriculture, and of varying significance in forestry and mining. In the manufacturing industries it appears particularly

CHART XXIII

PLACE OF AGRICULTURE IN THE NATIONAL ECONOMY  
1870 - 1930

Source: United States Department of Commerce, *Unpublished Report on Census Data, and the Census of Population, Occupations*, vol. IV, 1930.

important in the durable goods industries, but other factors may account for the concentration in many durable goods industries.

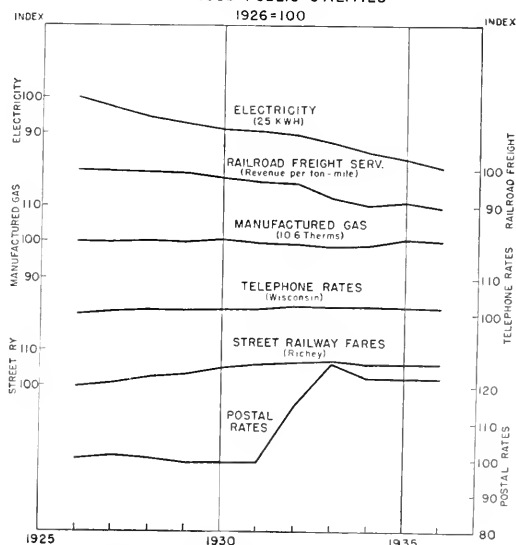
A third major factor contributing to administrative control over price and price insensitivity is collusion between separate enterprises or the bringing of whole industries under the dominant control of a single individual or group for the very purpose of exercising control over price. This control may be very loose and informal or may involve the concentration of production into a single enterprise as in the case of nickel and virgin aluminum. It may be reinforced through patents, through control of natural resources, or through strategic location. But however maintained, it adds to the inflexibility inherent in the narrowing of markets and the size requirements of modern industry.

Just how far each of these factors contributes to the presence of administrative control over prices cannot be determined without a careful study, industry by industry, of those industries showing a significant degree of administrative control. It is, however, abundantly clear that a considerable degree of administrative control is inherent in the narrowing of markets and the willingness of buyers to accept the one-price system of American merchandizing. Further administrative control is implicit if the efficiencies of modern technology are to be realized. Only to the extent that administrative controls arise from collusion between enterprises or through the bringing of production under common control beyond the extent necessary for efficient operation is there an opportunity to reduce the existing degree of administrative control without incurring a cost of decreased efficiency in the use of resources. Thus a considerable degree of administrative control over prices appears to be inherent in the modern economy. Administered prices and their depression insensitivity seem to be an integral part of the structure of economic activity. With the century-long transition of this country from a predominantly agricultural to a predominantly industrial country, the administration-dominated prices of industry have gradually displaced

the market-dominated prices of agriculture as the more characteristic form of price. As recently as 1870, over half of the gainfully employed workers in the United States were engaged in agriculture, whereas in 1930 little over a fifth were so engaged. This transition is shown in chart XXIII. However much of a role price administration may have played in the earlier years of this century, there can be little question that it plays a dominant role today.

Significance of Administrative  
Control over Prices

The great importance of administrative control over prices is not primarily its effect upon the gradual adjustment of prices necessary to insure a reasonable balance in the use of resources but the disorganizing results which arise from the resulting depression insensitivity of prices. It has already been shown that in the bulk of unregulated industries there is sufficient competition to keep monopoly profits to a minimum and insure at least a gradual readjustment of prices. In certain industries in which the power to administer prices is inherently so great that it makes possible significant monopoly profits, government can intervene to minimize or eliminate such profits either by sharing in the process of price administration, as in the case of railroad and utility regulation or by taking over the administering

CHART XXIV  
RATES CHARGED  
BY VARIOUS PUBLIC UTILITIES

Source: Based on data given in appendix i.

of prices through government ownership. For the national economy as a whole the combination of competition in the bulk of industries and government regulation or ownership in others appears to be capable of insuring the adjustments in price necessary to a balanced use of resources if it were not for the disorganizing effect of prices which are insensitive to depression influences. It is in the latter insensitivity that administrative control of prices has its major significance. Government intervention does not appear to reduce the disorganizing effects of insensitivity. However, successful governmental regulation or operation may be, in minimizing monopoly profits, it appears to increase rather than to decrease the insensitivity of prices to depression influences. This is brought out in chart XXIV which gives indexes of rates charged by the post office and by various regulated utilities before and during the depression. There is almost no downward reaction to the depression and in some cases an actual depression rise, most conspicuous in the case of the post office whose rates are administered by the Congress. Thus, while government may intervene to minimize monopoly profits in particular industries, this type of intervention does not operate in such a way as to bring the sort of depression adjustments in price which are likely to arise where prices are dominated by the market.

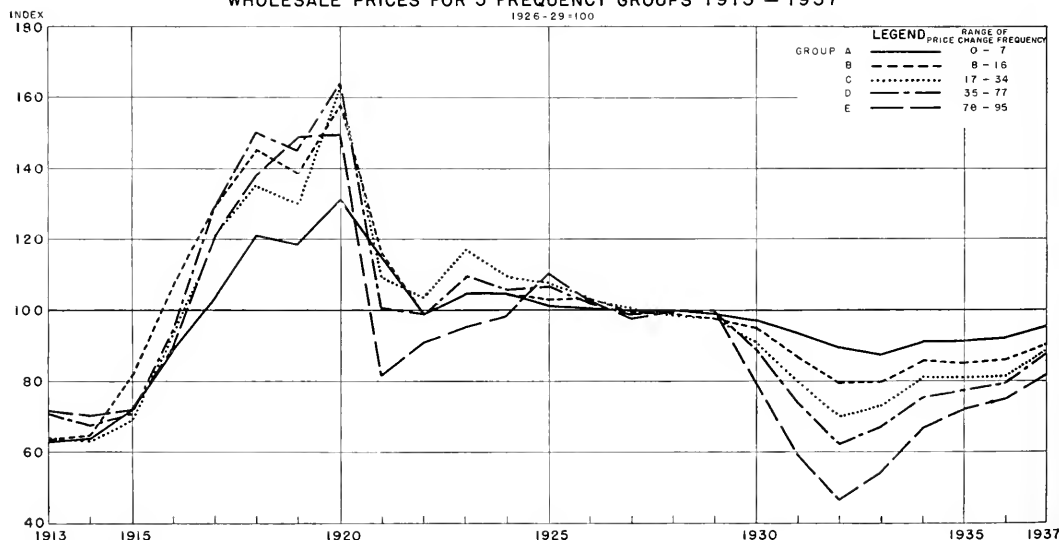
The insensitivity of administered prices to depression influences is important because it means that general

shifts in the price level do not take place in response to deficiencies of purchasing power. Instead, when pressure for general revision of prices arises as a result of depression influences, the market-dominated prices drop while the administration-dominated prices show varying degrees of resistance to readjustment. This can be clearly seen in chart XXV, which gives five indexes of the behavior of prices when items are grouped according to their frequency of price change, infrequency of price change being a rough guide to the degree of administrative control over price. Index E reflects the behavior of the 123 items from among the 617 wholesale price items which changed in price practically every month from 1926 to 1932. Index A represents 136 items which showed less than 8 changes between successive monthly quotations in the same 8-year period, or an average of less than one change a year. The other three indexes represent items intermediate in the frequency of price change.<sup>25</sup> All the indexes are based on the average of 1926 to 1929 as 100, thus being arbitrarily made to fit together during that period.

An examination of the chart shows the progressively greater sensitivity of prices to depression as the prices show less administrative control. It is notable that the

<sup>25</sup> The grouping of items by frequency of price change is made, not because of any significance of frequency of price change in itself but because it is at least a rough index of the degree of administrative control and is largely independent of the actual behavior of prices between 1929 and 1932 and between 1932 and 1937. Essentially, the same classification would have resulted if items had been grouped by the frequency of price changes from 1926 to 1929.

CHART XXV  
WHOLESALE PRICES FOR 5 FREQUENCY GROUPS 1913 - 1937  
1926 - 29 = 100



Source. Based on data given in appendix 2, table IV.

indexes spread out between 1929 and 1932 and come more or less together between 1932 and 1937. It is also significant that, in spite of the dislocations of the World War and its immediate aftermath, the five indexes when carried back to 1913 come fairly close together.<sup>26</sup> During the war years the price rise appears to have been of a more general character, the whole body of prices rising, though the infrequently changing prices as a group rose least. However, in the precipitate depression drop of prices from 1920 to 1921 when the index of wholesale prices dropped 37 percent, the five groups of prices showed the same tendency for the market-dominated prices to drop most, and the administration-dominated prices to drop least. In the recovery period from 1921 to 1923, the three groups showing the more frequent price changes rose, the most frequently changing rising the most as in the period from 1932 to 1937.

<sup>26</sup> If 1913 had been used as a base instead of 1926 to 1929, the five indexes would have shown the same playing out in the depression and coming together in the recovery, though they would not have started as close together or returned as nearly together.

On the other hand the two least frequently changing groups were lower in 1923 than in 1921. These changes are indicated in table V.

TABLE V.—Decline and recovery of 5 price indexes, 1920-23, 1929-37

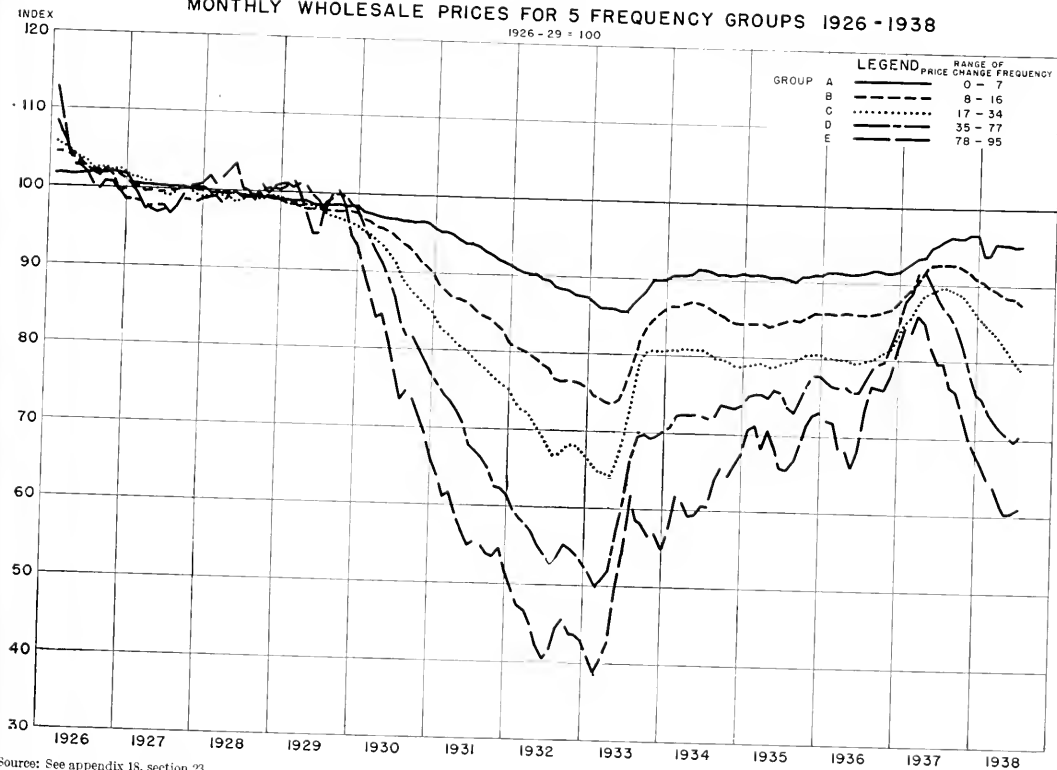
	Drop in prices 1929 to 1921 as a percent of 1929 prices	Rise in prices 1921 to 1923 as a percent of 1923 prices	Drop in prices 1929 to 1932 as a percent of 1929 prices	Rise in prices 1932 to 1937 as a percent of 1937 prices
Group A .....	12.3	-10.2	9.4	6.3
Group B .....	26.6	-11.1	18.7	13.0
Group C .....	33.3	6.7	28.2	20.8
Group D .....	38.8	8.6	37.9	29.5
Group E .....	43.4	14.5	53.4	43.4
Wholesale price index ..	36.8	2.7	32.0	24.9

Source: Based on data in appendix 2, table IV.

The uniform character of the difference in the behavior of the five groups is brought out more clearly when the monthly data are plotted as in chart XXVI. This chart also brings out the sharp downward swing of

CHART XXVI

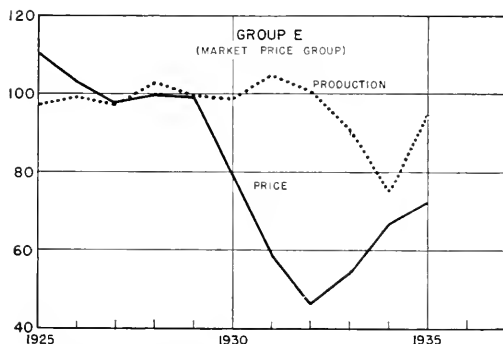
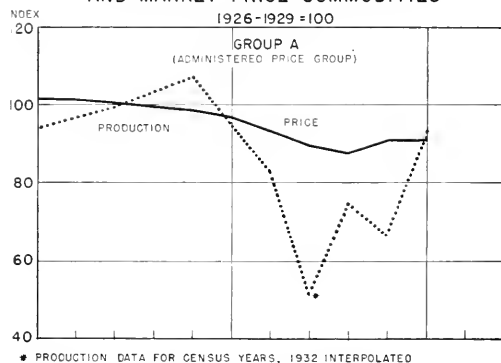
MONTHLY WHOLESALE PRICES FOR 5 FREQUENCY GROUPS 1926-1938  
1926-29 = 100



Sources: See appendix 18, section 23.

CHART XXVII

# PRODUCTION AND PRICES OF ADMINISTERED AND MARKET PRICE COMMODITIES



Source: See appendix 18, section 24.

prices after the early months of 1937 and indicates again a repetition of the behavior pattern already noted.

The monthly data also bring out the lag in the initial reaction to depression on the part of prices more subject to administration. The most sensitive index, E, turns down first, followed a month later by D and two months later by C and B. The least sensitive index, A, lagged by eight months. In terms of the period of the depression, these are relatively minor lags. The fact that they are present and are minor lends support to the idea that the relative insensitivity of the administered price does not reflect primarily a delay in reacting to a reduced level of purchasing power but is a differential reaction which could not be expected to disappear if conditions were stabilized at the lower level of purchasing power.<sup>27</sup>

<sup>27</sup> This idea is given further support by the fact that except for the slight lag already noted the insensitive prices began to rise in the recovery period about as soon as the sensitive prices even though there was still a very wide gap between their relative positions.

As has already been indicated, there is a marked tendency for some industries to react to the depression and recovery primarily through a decline and recovery in prices, whereas others react primarily through a decline and recovery in production. This same general tendency is reflected when production indexes are developed to correspond to the five price indexes just given. The production indexes actually developed are very preliminary in character and the coverage is far from complete, varying from approximately 50 percent of the total value of the commodities whose prices are represented by the items in group A, to 80 percent in group E. The production indexes for groups A and E are given in chart XXVII<sup>28</sup> along with the corresponding price indexes. This chart indicates clearly the decline and recovery in price of the group of items dominated by the market and the decline and recovery in production for the most administration-dominated group of items. The behavior of all five groups in depression and recovery is given in table VI. The prices and production ratios given in the table are averages for each group and as such allow the special factors which effect the price and production relationships of particular commodities to offset each other to a considerable extent so that the rough general relationship underlying this diversity of behavior is apparent. Even with this offsetting of special factors, the three middle groups do not show a smooth progression but reflect other factors influencing price behavior. Yet they fall intermediately between the two extreme groups and support the rough association between a large depression drop in production and a small drop in price on the one hand, and a large drop in price and maintained production on the other, with intermediate results between.

TABLE VI.—Percentage changes in production and prices for five frequency groups

Group	Percent drop, 1929-32		Percent increase, 1929-35	
	Price	Production	Price	Production
A	9.4	52.6	2.0	81.0
B	18.7	82.8	6.9	26.5
C	28.2	45.7	15.5	46.8
D	37.9	38.7	25.0	32.2
E	53.4	-0.4	55.7	-5.9

Source: Based on data in appendix 18, section 24.

## New Terms Necessary for the Analysis of Price Behavior

The foregoing analysis points to characteristics in the price structure which require new terms for their discussion. It is not sufficient to talk of a change in the level of prices such as might be reflected by a change in the index of wholesale prices. If the insensitive

<sup>28</sup> The data for the other groups were completed after the chart was made and time did not permit their inclusion.

prices remained constant while the sensitive prices went down 20 percent, the net effect might be to lower the index of wholesale prices by 10 percent. The same change in the index could be brought about by a decline in all prices of 10 percent. Yet the two ways by which the drop in the wholesale price index was brought about would have quite different implications. The general drop in prices would leave price relationships unaltered. If, before such a drop, wheat was a dollar a bushel and a threshing machine cost \$2,000, the latter could be obtained for 2,000 bushels of wheat. If both wheat and threshers dropped 10 percent in price the threshers could still be obtained for 2,000 bushels of wheat.

On the other hand, the differential type of changes tends to distort price relationships. If, in the light of existing resources, wants, and techniques, the prices of wheat and threshers were approximately in balance at \$1 and \$2,000 respectively and wheat dropped to 80 cents because of a decline in general purchasing power, while the price of threshers remained constant, the two prices would be out of balance so far as the basic relation between wants, techniques, and resources is concerned.<sup>19</sup>

General price changes of the first type have been extensively discussed in economic literature, but the second type has received little attention. Yet the general price changes between 1929 and 1938 were almost entirely of the second type. It has already been indicated that between 1929 and 1932 there was a considerable drop in the wholesale price index, but that this drop was made up of a violent drop in the prices of market-dominated commodities, and there was only a very small drop or no drop at all for the bulk of the prices which are subject to extensive administrative control. As a result, price relationships were seriously distorted. In the recovery period from 1932 to 1937, much of this distortion was eliminated by the large increases in the market-dominated prices and the relatively small increase in the bulk of the administration-dominated prices.

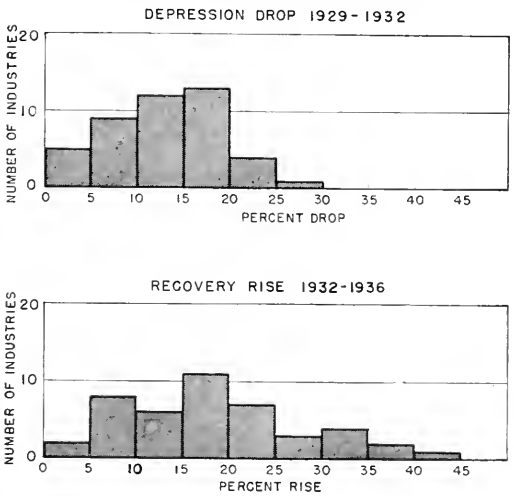
This differential behavior of prices points to a characteristic of the price structure of great importance and one calling for intensive study. General changes in the level of prices are often looked upon as an essential part of the process by which the market mechanism operates more or less automatically to maintain full and effective use of resources. Yet the evidence above

suggests that, at least under some conditions, the forces making for a general change in the price level actually work themselves out through a violent distortion of price relationships rather than through a general price readjustment.

Labor Rates

The structure of labor rates cannot be studied in as great detail as that of goods prices because of the absence of adequate data. Prior to 1929 the hourly wage data are too inadequate to provide a basis for any general analysis. The consideration of labor rates is, therefore, limited to the years from 1929 to 1936. For this period the behavior of wages will be examined in 44 manufacturing industries representing approximately 60 percent of the workers employed in manufacturing in 1935. For each industry the figures used in the analysis are not indexes of actual hourly wage rates but of average wage rates derived by dividing total weekly pay rolls by total hours worked for a group of firms in each industry which report such data to the Bureau of Labor Statistics. The resulting figures represent a rough index of hourly wage rates in each industry, but have the weakness that if the proportion of skilled and unskilled workers shifts markedly the figures as calculated will, to that extent, give a distorted representation of hourly wage

CHART XXVIII  
DISTRIBUTION OF HOURLY WAGE RATES  
IN 44 INDUSTRIES BY DEPRESSION  
DROP AND RECOVERY RISE



Source: Based on data given in appendix 6, table I.

<sup>19</sup> Among technicians the two different types of price change might respectively be referred to as a change in the "slope" of the price structure or a "rotation" of prices when there is a change in the relation between indexes made up respectively of market- and administration-dominated prices, and as a change in the "level of the price structure" or a "translation" of prices when such indexes change upward or downward together. Changes in prices might be of either type or a compound of both types of change, though the general price changes during the current depression were for the most part changes in "slope."

rates. Until correction can be made for this factor, the figures will have to serve.

An examination of the wage data shows very much greater similarity of behavior in wage rates than in goods prices, and a much smaller sensitivity to depression. This is brought out in chart XXVIII, which shows the 44 industries distributed according to the drop in wage rates between 1929 and 1932, and the rise from 1932 to 1936. In half the industries, the hourly wage rate dropped less than 15 percent while the all commodity wholesale price index dropped 32 percent and the retail prices dropped 20 percent. Only four industries in the sample show a cut in wage rates of more than 20 percent. Since in most cases the hourly wage rate dropped less than retail prices, these figures suggest that workers who continued to be fully employed experienced, on the whole, a gain in real buying power, and that the real burden of the depression took the form of unemployment or partial employment and the lack of stability which goes with such conditions. In the recovery period the differences in behavior were greater, presumably in part due to the increased strength of labor organizations which were able to lift wage rates in particular industries appreciably above their 1929 level.

The extent of the depression drop in wage rates does not appear to be closely associated with the durability of goods produced or with the depression drop in employment. In 20 of the 21 durable goods industries included in the sample, employment dropped over 50 percent while it dropped less than 50 percent in all but three of the semi- or non-durable industries covered. Yet indexes of the hourly wage rates in the two groups behave almost alike. This is shown in chart XXIX which indicates not only the behavior of wage rates in the durable and nondurable groups of industries but also the difference in the volume of man-hours worked. The same lack of any clear connection between the decline in the manpower required by an industry and the decline in wage rates is apparent when the individual industries are compared with each other. The 44 industries are listed in table VII in order of the percentage decline in hours worked and the percent decline in wage rates.

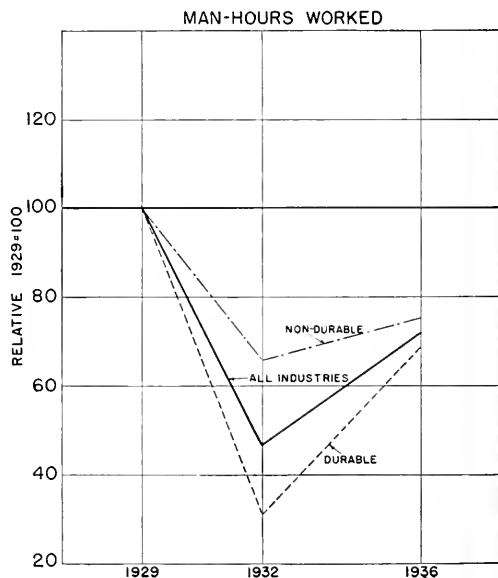
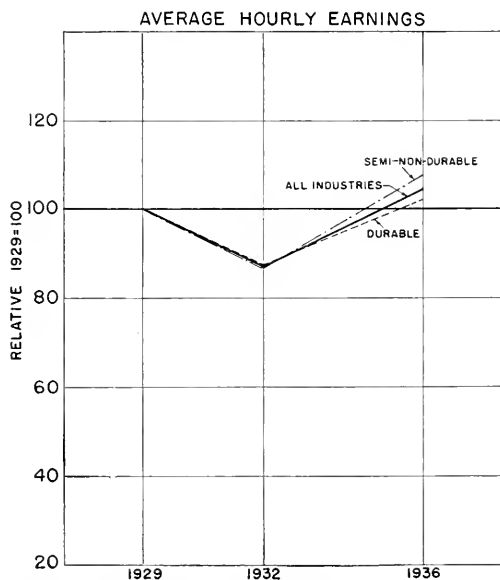
In the recovery period, the semi- and nondurable industries showed greater increases in wage rates than did the durable goods but the difference is not very significant.

Examination of table VII suggests that, on the whole, the wage rates in the concentrated industries like auto-

CHART XXIX

## EARNINGS AND EMPLOYMENT IN RELATION TO DURABILITY

1929, 1932 & 1936



Source: Based on data given in appendix 6, table II A.



TABLE VII.—Percentage decline of man-hours and wage rates in 44 industries, 1929-32

Industry	Percentage decline in man-hours 1929-32	Percentage decline in hourly wage rates 1929-32
Machine tools.....	84.8	5.8
Agricultural implements.....	84.2	18.2
Brick, tile, and terra cotta.....	77.7	21.3
Lumber: Saw mills.....	74.8	16.9
Structural and ornamental work.....	71.8	8.3
Foundry and machine shop products.....	71.7	13.2
Radio and phonographs.....	70.4	2.9
Blast furnaces, steel works, and rolling mills.....	70.2	19.5
Lumber: Millwork.....	70.0	16.6
Electrical machinery, apparatus, and supplies.....	69.2	6.9
Brass, bronze, and copper products.....	66.6	10.9
Steam and hot water heating apparatus.....	65.9	13.5
Automobiles.....	63.5	9.1
Hardware.....	62.9	4.3
Cement.....	62.4	18.6
Cast-iron pipe.....	60.3	18.1
Structures.....	59.8	19.8
Silver and plated ware.....	55.0	16.9
Glass.....	52.3	11.3
Ship building.....	51.3	1.7
Stamped and enameled ware.....	48.6	13.5
Carpets and rugs.....	47.7	14.0
Fertilizers.....	40.4	14.4
Rubber tires.....	40.3	7.1
Silk and rayon goods.....	43.8	20.4
Chemicals.....	42.8	2.2
Cotton goods.....	39.2	21.9
Woolen and worsted goods.....	38.9	19.0
Cigars and cigarettes.....	37.0	11.0
Confectionery.....	37.0	8.8
Leather.....	36.3	16.2
Paper boxes.....	36.1	6.1
Ice cream.....	35.8	11.6
Paper and pulp.....	35.0	19.4
Petroleum refining.....	34.8	2.3
Dyeing and finishing, textiles.....	28.5	20.0
Knit goods.....	27.9	15.9
Men's clothing.....	26.8	20.3
Newspaper printing and publishing.....	24.9	8.4
Boots and shoes.....	24.6	10.8
Flour.....	23.6	14.2
Rayon and allied products.....	22.5	5.5
Slaughtering and meat packing.....	21.0	13.1
Chewing and smoking tobacco and snuff.....	8.4	18.7

Source: Based on data given in appendix 6, table I.

mobiles, rayon, and rubber tires, declined less than wage rates in the unconcentrated industries like cotton textiles and men's clothing. To bring out this difference in behavior, both the durable goods industries and the semi- and non-durable goods industries have been divided into concentrated and nonconcentrated industries on the basis of the proportion of the workers in the industry employed by the four largest companies. Industries in which four companies hired more than 30 percent of the workers are arbitrarily classed as concentrated industries. When the wage rates for the separate groups are plotted, as in chart XXX, the greater sensitivity of the nonconcentrated industries is apparent. In the case of both durable and nondurable goods, wage rates in the concentrated industries as a group fell less than rates in the nonconcentrated industries and rose more in the period of recovery.

Apart from the difference in behavior shown in the charts mentioned above, reflecting the durability of goods and degrees of industrial concentration, the analysis of the wage data for the 44 industries has not disclosed any characteristics of wage behavior which appear significant for the structure of prices.<sup>30</sup> A larger sample, covering a longer period and subjected

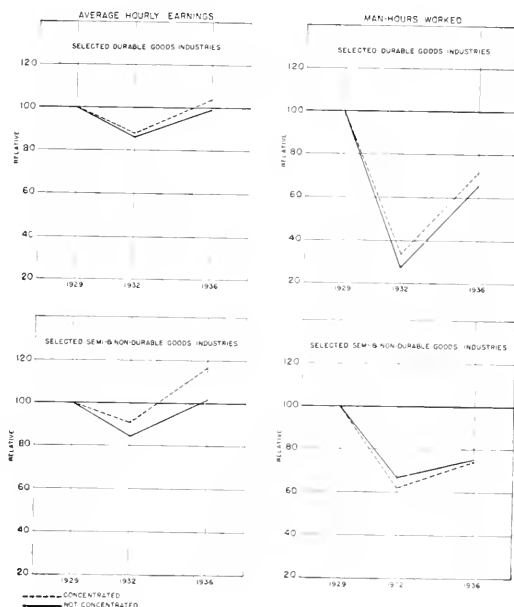
to more intensive analysis, would undoubtedly disclose important elements in wage behavior. How are wages actually affected by labor organization, by regional difference, and by other factors? As it is, one can point to the greater homogeneity in the behavior of wage rates than in the behavior of goods prices and a very much greater stability than is shown by wholesale prices. At the same time a degree of flexibility is shown which suggests a process of constant gradual readjustment to altered conditions.

### Security Prices

The third main element in the price structure consists of security prices and the associated interest and dividend rates. They are just as much a part of the price structure as are goods prices and labor rates. But research using modern methods of investigation has not yet been carried to the point where characteristics significant to the structure of the whole economy have been disclosed. Only the general independence and fluidity of security prices referred to in the first section of this chapter are evident.

The fact that security prices act more or less independently of goods prices and labor rates can undoubtedly

CHART XXX

EARNINGS AND EMPLOYMENT IN RELATION TO DURABILITY AND CONCENTRATION  
1929, 1932 & 1936

Source: Based on data given in appendix 6, table II A.

<sup>30</sup> Analysis of the sample of 44 industries disclosed no significant association between the level of wage rates in 1929 and the depression drop, or between price changes and changes in wage rates.

edly be explained in part by the small volume of new securities issued each year in relation to the total issues outstanding. The average annual issue of new securities between 1926 and 1929 as reported by the *Financial and Industrial Chronicle* was only 8 billion dollars, compared with a total of corporate and governmental securities outstanding of over 185 billion dollars in 1929. The market is, therefore, to a large extent dominated by the outstanding securities and only to a secondary extent influenced by new issues. It is a little as though 200 to 250 million bales of cotton were constantly kept on hand. In such a case a difference between a 15 million bale crop and a 10 million bale crop in any one year would be likely to be of secondary significance compared to variations in the desire to store cotton. Because of the large volume of outstanding securities in relation to the annual increment, security prices can move in ways which are not directly related to productive activity. Just how these movements actually contribute to or impede effective use of resources needs to be made the subject of more intensive study along with the study of the interrelation of particular groups of security prices and of interest and dividends rates and their differential behavior.

### Conclusion

This summary analysis of the behavior of prices brings out two characteristics of the price structure which throw important light on the organizing influence of prices and the market mechanism. The preceding

chapter has indicated that the market can act as an organizing influence partly through the characteristics of money transactions and partly through gradual or rapid changes in price relationships. The analysis of actual price behavior in this chapter has suggested that, for the bulk of goods prices and, so far as the very summary analyses can indicate, for the bulk of labor rates and the bulk of security prices, there is a degree of price flexibility which appears sufficient to allow the gradual readjustment of price relationships to reflect the gradual changes in wants, in resources, and in techniques of production, if the level of economic activity were reasonably well maintained. On the other hand, the analysis has made it abundantly clear that large groups of prices, and to some extent labor rates, do not have a quick sensitivity to the decline in buying power which accompanied the recent depression, while other goods do have such a quick sensitivity. On the whole, it is the administration-dominated prices which show relatively little price readjustment with depression, while the market-dominated prices have tended to be sensitive not only to the more slowly working influence of changes in wants, resources and techniques, but also to the more rapid changes in mass buying power. This differential sensitivity of prices to depression influences tends to introduce serious distortions in the price structure and appears to reflect a disorganizing rather than an organizing role that the market can play. It is a characteristic of the price structure of the greatest importance.

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## CHAPTER IX.—THE STRUCTURE OF CONTROLS

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Chapter VII has discussed the main influences which make for economic organization—the market, administration, canalizing rules, and accepted goals. Chapter VIII has examined the structure of prices through which the market operates to influence economic activity. In this chapter an attempt will be made to examine the nonmarket controls through which economic activity is influenced and to show how the innumerable threads of control build up into a structure of controls which is quite as important as the structure of prices in determining the use which is made of national resources.

The major elements of control which are significant for the structure of the American economy are to be found in the great operating corporations, in the big financial institutions, in the trade and business associations, in the labor unions, in the farm organizations, in consumer organizations, and finally in the State and Federal Governments. If the economic controls associated with these organizations could be clearly delineated, the results would yield the main essentials in the structure of controls.

In practice, the task of outlining the structure of controls is more difficult than that of giving the essentials of the price structure. This difficulty arises in part from the greater difficulty of observing and measuring controls, and partly from lack of a background in economic literature for the conception of such a structure. Prices can fairly readily be measured, but the threads of control which constitute the control structures are often hidden, ill defined, and difficult to determine. Economic literature is full of discussions of price relationships and the conception of a system of interrelated prices. Against this background it is possible to set actual prices and bring out both their interrelated character and their behavior as they condition the use of resources. But economic literature has been little concerned with building up the conception of a system of more or less interrelated controls which might equally condition the use of resources. Since, in fact, economic activity in this country is quite as much organized through systems of administrative or canalizing controls as it is by the market, it is impossible to outline the structure of the American economy without covering the structure of such controls. The absence of any well articulated conception of such a system of controls makes this task more difficult and is likely to make the results less satisfactory.

### The Concept "Controls"

Because the term "controls" involves a relatively new economic concept, it is important to give it the greatest

possible clarity.<sup>1</sup> It is used here to refer to the ability of one individual or group to influence the policies in respect to the use of resources which are adopted by another individual or group. Thus, if a person can influence the production policy of a particular farmer by offering to buy his product at a price, by threatening to foreclose his mortgage, or by some other means so that the farmer raises one crop rather than another, to that extent the person is in a position to exercise some measure of control over the farmer's activity. Likewise, a factory superintendent is usually in a position to exercise a considerable measure of control over the activities of the workers in the factory during working hours. The management of a corporation similarly exercises a measure of control over the activities of subordinates, while the directors and the security-holders may, in turn, exercise varying degrees of control over the policies adopted by the management. Other groups, such as important buyers of a company's products, suppliers of raw material, financing agencies, labor unions, and government agencies, may exercise a considerable influence over the policies of an enterprise and to that extent share in its control. In each case, policies are developed with respect to the use of the resources available to the individual, or enterprise, or agency, and each of the persons or groups who influenced these policies may be said to have exercised some measure of control over them.

It is possible to conceive of a highly complex pattern of threads of control running between all the individuals and groups in a society much as the physicist conceives of lines of attraction connecting all the stars and

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<sup>1</sup> To some extent this chapter is concerned with subject matter which is covered by the political scientists under the heading of "power." The term "controls" is used rather than the term "power" for two reasons. First, the political writers in discussing "power" have traditionally limited the discussion to the field of Government and have centered their attention, not on how power operates to make for more or less effective use of resources, but on how power is acquired, maintained, or displaced. Therefore, in attempting to integrate market, administrative and canalizing factors as they affect the organization of resources it has seemed advisable to use a term not likely to be given the traditional connotations usually attached to the term "power."

A second and more significant reason for using the term "controls" rather than the term "power" is the dynamic implications of the former. "Power" is solely a term of position whereas "control" is a term of both position and action. A person can have powers, i. e., be in a position of power. Likewise, a person can have controls, i. e., be in a position of control. But only in the case of control is it possible to say that a person controls, referring thereby to the dynamic process of influencing the policies adopted by others. The verb "to control" thus corresponds to the phrase "to exercise power." A third advantage of the term "controls" is that it is likely to result in greater concreteness. The statement that A has control will usually evoke the questions "control over what or whom?" Power is more likely to be treated as an abstract quality so that the statement that A has power is more likely to be accepted as requiring no further definition.

The term "controls" is used throughout this report in the plural or in the form "threads of control" to suggest the very partial character of the controls exercised by anyone over others in any concrete situation. Like the term "power" when applied to the problems of political science, the term "controls" applied to economic problems in this report is limited in its scope to cover only social relationships and does not refer to an individual's control over physical matter.

planets in the universe. In outlining the structure of controls, however, only certain major controls need to be considered.

### Market Controls

Many of the threads of control exercised by individuals or groups are summarized in market phenomena. The influence which millions of bread consumers exercise over wheat farmers operates almost entirely through the influence of their demand on price and is thus summarized in the price of wheat. The controls exercised by millions of telephone users over the telephone systems are partly reflected in the demand for telephone service. To the extent that threads of control are summarized in market phenomena, they can be referred to as market controls and be analyzed as such. It is possible to imagine an economy in which all controls consisted of market controls. In such an economy, the policy of every enterprise would be so dominated by market controls reflected in market prices that no significant alternatives in price policy would be left to be influenced by nonmarket controls.<sup>2</sup> In such a case, all controls would be covered by an analysis of markets.

### Nonmarket Controls

However, in practice, market controls only partly determine the use of resources. In many producing units there is a wide latitude of choice in price policy, and economic controls not operating through the market are in effect. The extent of these nonmarket controls is suggested by the prevalence of insensitive administered prices already noted and by the absence of free market prices in a large part of the American economy.<sup>3</sup> Where policies with respect to the use of resources are only limited and not dominated by market controls, the nonmarket controls become a significant factor making for more or less effective use of resources. These nonmarket controls appear to build up into what has here been called a structure of controls, some of minor significance, some of major significance to the functioning of the national economy. The present outline of the structure of controls is concerned only with these major nonmarket controls.

Nonmarket controls may be said to be of major importance when policies affecting a very large number of persons can be significantly influenced. The major policies developed in large administrative organizations, such as an army or a large business corporation, usually are subject to a very considerable measure of nonmarket control and influence the actions of so many people in their use of resources as to be of signifi-

cance to the functioning of the whole economy. The nonmarket controls exercised by financial institutions through the handling of investment funds, and the nonmarket controls exercised by government through the regulation of business enterprises, through its fiscal policies, through the protection of property and enforcement of contracts, and through other major policies, likewise influence the activities of millions of people and are important to the structure of controls. Persons or groups in a position to influence policies at these points are, for this reason, in a position to influence to a corresponding extent the effectiveness with which the national resources are employed.

The nonmarket controls over policy are seldom sharply defined. Often the threads of nonmarket control build up in such a way as to result in many different foci of control, each focus having to do with some particular phase of activity. Thus, in a big corporation, while the main threads of control over operating policy may come to a focus in the hands of the corporation president, some threads of control are likely to rest with other groups; controls over financial policy may be partly focused in a special finance committee of the board of directors and partly focused in some bank or financial house to which the corporation is under obligation; the threads of control over labor policy may be divided between the corporation and a labor union, some threads focusing in the corporate management and some in the union officials; threads of control over some aspects of policy may rest with the government bodies, as in the case of minimum working standards or public utility regulation; still other threads may rest with some dominant buyer whose orders are so important that he can, within limits, dictate the internal policy of the corporation, say with respect to its policy toward labor organization; or a supplier of raw materials or of services may hold sufficient threads of control to influence or dominate corporate policy in particular respects. Thus, in any concrete situation, there is likely to be a complex network of controls, and a series of foci of varying degrees of importance, each concerned with some particular phase of activity.

The controls which come together at these different foci are sometimes direct and immediate, as in the case of a soldier and his immediate superior officer, or the worker and his shop foreman, but as often they are indirect and intangible. Sometimes they may operate simply through establishing a climate of opinion within which policies are developed. More often they impinge directly on the process of policy formation. The controls which a banker can exercise over a business enterprise may be only indirectly related to the process of borrowing. The controls exercised by Government through its monetary and fiscal policies

<sup>2</sup> Such a conception is, of course, the basis of traditional economic analysis.

<sup>3</sup> It should be noted that the existence of a "price policy" on the part of a functioning firm is prima facie evidence of the presence of nonmarket controls, though it does not indicate their magnitude.

often go largely unnoticed. The controls which a corporation exercises over public opinion through its institutional advertising are far from direct. The whole structure of controls is thus made up of some elements of control which are easily traced and other elements so indirect that their existence can only be surmised.

The actual threads of control may be entirely informal or may be accompanied by a formal setting. For a business enterprise an organization chart may indicate the lines of control and responsibility with respect to its major policies. The corporate charter must set forth in some detail the formal division of controls between different groups of security holders and between the security holders and the management. Sometimes the formal lines of control and the actual lines may differ. In many corporations a majority of the stockholders are, as a matter of form, in a position to control the corporate enterprise, while, as a matter of fact, they are not in position to exercise actual control. Since the formal controls are often more easily ascertained than the actual controls, there is always danger of arriving at a false impression as to the locus of controls in any concrete situation. Only gradually as the concept of controls is further clarified through discussion and as actual economic activity is more closely analyzed will it be possible to give clear definition to the structure of controls.

### **The Basis of Controls**

In the conduct of economic activity the controls exercised by individuals or groups arise from three main sources: possession of one or more of the factors of production, possession of liquid assets, and position in relation to a functioning organization.

Controls arising out of possession of the factors of production are relatively simple and direct. The farmer possessing land, tools, and seed is to this extent free of outside controls. The manufacturer possessing a factory can limit its use, usually determining when it shall be run and when it shall be closed. A strategically located worker may exercise some control over production through his freedom to quit work. Possession of one or another factor of production is thus one basis of control.

Possession of liquid assets, particularly the possession of salable securities and money, is a second source of economic controls. The possessor of liquid assets is in a position to buy action by others. Sometimes the mere possession of liquid assets without their actual expenditure can influence the action of others, though, for the most part, the controls derived from liquid assets depend on the expenditure of the liquid assets in the market.

The third and, for present purposes, the most important form of the economic controls exercised by individuals or groups arises from their position in relation to some functioning organization. The management of a large corporation may be able to exercise a significant degree of control over the use which is made of resources without itself owning any significant volume of assets. Because of its position in the corporate organization, the management shares in the controls arising from the assets of the corporation and the institutional relationships which develop out of its operations as a going organization. The leaders in a labor organization can exercise some control over production policy as a result of their position in an organization whose influence is based upon the labor factor of production. The leaders in a trade association similarly derive some measure of influence over the use of resources as a result of the organized relationship of its members. A government administrator is in a position to influence the use of resources as a result of his position in the governmental organization. The individuals in such positions do not exercise controls as a result of their own possession of assets but as a result of their organizational position.

The major importance of organizational controls is due, first, to the fact that the most significant nonmarket controls arise from organizations, and second, to the greater relative growth of such organizational controls. The great shift from a dominantly agricultural to a dominantly industrial economy during the last century has tended to expand organizational controls. The increased concentration of production into large corporate units, expansion of government functions, increased financial concentration, and growth of both labor organizations and trade associations all work in this direction. The expansion in the role of organization has reduced the relative importance of market controls and increased that of nonmarket controls to such an extent that market controls no longer dominate economic activity. Nonmarket controls have ceased to be isolated as incidental occurrences and have developed into an interrelated system of controls which is quite as important as the system of interrelated prices in determining the use to which resources are put. It is this system of nonmarket controls and its structure with which the remainder of this chapter is concerned.

### **The Structure of Controls**

The main essentials in the interrelated structure of controls have to do, first, with the large producing units, their major policies, and the controls over these policies, and, second, with the controls over aspects of the policies of smaller producing units such as can be

exercised by government agencies, financial institutions, trade associations, labor unions, and similar organizations. The major role in the American economy played by the two hundred largest nonfinancial corporations has already been indicated in chapter VII. The nonmarket controls which influence the use of resources made by these separate producers constitute a significant part of the structure of controls and will be examined below in some detail. For smaller producing units, the nonmarket controls are less likely to be significant, except where a number of separate units are subject to the same controls in respect to some phase of their policy as, for instance, where a trade association influences the terms of trade or a labor union influences the terms of work. In such cases it is the controls exercised by the organization influencing some particular aspect of policy for many producers which are important. The nonmarket controls influencing only the policy of the specific small producer can be disregarded because of the relatively minor role played by any one such producer in the national economy. In the following pages an attempt will be made to outline the main elements in the structure of controls, taking up, first, the controls exercised over the larger corporations, giving particular emphasis to the controls exercised by what might be called the corporate community; second, the controls exercised by the more important organizations of economic-interest groupings outside of the larger corporations; and finally, the controls exercised by government.

### Controls over the Larger Corporations

A clear indication of the controls exercised over the larger corporations can be obtained by examining the 200 largest nonfinancial corporations and the larger financial corporations already listed in chapter VII. What persons or groups are in a position to influence the policies of these large corporations? What are the more important nonmarket controls?

#### The Separation of Ownership and Control

In an examination of the controls exercised over the larger corporations, first consideration must be given to ownership. It has long been customary to regard the stockholders of a corporation not only as the owners of the corporation but also as the main source of control over its activity. Yet, in practice, ownership of most of the larger corporations has become so dispersed that the stockholders have ceased to be able to exercise a very significant degree of control over corporate policy. Sometimes legal devices such as nonvoting stock and pyramided holding companies have been adopted to divest stockholders of effective control over corporate policy and personnel. On the whole, ownership and

control have become separated in the larger corporations.

The inability of stockholders to exercise major control over corporate policies can be suggested by an examination of the stock ownership of the country's largest nonfinancial corporation, the American Telephone & Telegraph Co. At the end of 1935 there were 659,000 stockholders on the books of the corporation, a number almost equal to the number of potential voters living in the five smallest States.<sup>4</sup> The holdings of different sized blocks of stock are indicated in table I.

TABLE I.—Distribution of stock ownership, American Telephone & Telegraph Co., 1935

Number of shares held	Number of holders	Percent of stockholders	Percent of total number of shares
1-5.....	.....	36.8	3.8
6-10.....	.....	20.7	6.1
11-25.....	.....	22.5	13.2
26-99.....	.....	15.9	26.4
100-999.....	.....	5.0	33.9
1,000-9,999.....	.....	1	11.4
10,000 and over.....	43	.....	5.2

Source: Annual Report of the American Telephone & Telegraph Co. for 1935.

The 43 largest stockholders, each owning 10,000 shares or more, together owned only 5.2 percent of the total stock, while the 700 holding 1,000 or more shares together held only 16.6 percent. In this largest of all corporations, stock ownership is so widely dispersed that no one person or small group is in a position to dominate the corporation as a result of stock ownership. Neither are stockholders as a group in a position to exercise significant control over corporate policy through majority vote. The policies of the corporation have seldom been presented to the stockholders for a vote before adoption,<sup>5</sup> and even in the usual vote for corporate directors the proxy machinery usually eliminates any significant control by stockholders.<sup>6</sup> As a result, control over the policies of the American Telephone & Telegraph Co. lies only to a minor extent with its stockholders.

While the dispersion of ownership and the corresponding separation of ownership and control has developed to a high degree in the case of this largest of corporations, it has carried to a considerable degree in most of the larger corporations. In the study of large corporations by Berle and Means,<sup>7</sup> it was shown that

<sup>4</sup> The number of potential voters is defined as that portion of the population which is 21 or more years of age. The five smallest States with respect to population are Nevada, Wyoming, Vermont, New Mexico, and Delaware.

<sup>5</sup> Corporate charters often contain specific provisions requiring a majority vote of stockholders on certain problems of policy such as a proposal for issuing new stock, but this type of voting is not usually concerned with the main essentials of corporate policy.

<sup>6</sup> See *The Modern Corporation and Private Property*, by A. A. Berle, Jr., and G. C. Means, New York, 1932, book I, ch. V.

<sup>7</sup> *Op. cit.*, book I, ch. V.

of the 200 largest nonfinancial corporations in 1929, only 11 percent were clearly controlled on the basis of majority stock ownership, while in the case of 65 percent of the 200 corporations representing 80 percent of their combined assets, the ownership of stock was so widely dispersed or so shorn of powers through some legal device that stockholders were not in a position to influence corporate policy to a major degree.

The same indication of a high degree of separation of ownership from control is disclosed in a more recent study based on information filed with the Securities and Exchange Commission.<sup>8</sup> Many corporations are required to file with the Commission information on the total stockholdings of their officers and directors and the stockholdings of other individuals and corporations holding 10 percent or more of any of their voting issues. This information was available at the end of the year 1935 for 155 of the 200 large corporations listed by Berle and Means. A compilation based on these data is given in table II.

TABLE II.—Stockholdings of controlling groups

[Distribution of 155 large corporations according to proportion of voting stock owned by officers, management, and control group]

Proportion of stock outstanding (percent)	Number of companies		
	All officers	Management (all officers and direc- tors)	Control group (officers, direc- tors and stock- holders with 10 percent of any voting stock issued) <sup>1</sup>
0-1.....	96	61	73
1-3.....	25	30	
3-5.....	10	21	
5-10.....	15	16	24
10-15.....	3	11	
15-50.....	4	14	
50 and over.....	2	2	15
Median holding as percent of voting power.....	.40	1.74	5.40

Source: See footnote 8, below.

<sup>1</sup> Includes both stockholdings by other corporations and by individuals. A large proportion of the stockholders holding 10 percent or more at any voting stock issue were other corporations.

For nearly half of these 155 big companies no one stockholder owned more than 10 percent of the voting stock, and the officers and directors together owned less than 5 percent of the outstanding stock. In only 15 companies did the officers, directors, and large stockholders appear to own 50 percent or more of the voting stock, and in several of these cases the large stockholders were other corporations. For the 155 corporations as a whole the control groups owned approximately 12.4 percent of the voting stock.<sup>9</sup> Since this figure includes substantial stockholdings by other corporations, the stockholdings by individuals in a position to exercise

<sup>8</sup> Robert A. Gordon, "Ownership by Management and Control Groups in the Large Corporation," *Quarterly Journal of Economics*, May 1938.

<sup>9</sup> Average of percent holdings by control groups when weighted by number of shares of voting stock, each share being multiplied by the number of votes attached to it.

dominant control over these corporations must have been appreciably less than 12.4 percent of the total voting stock outstanding. No corresponding information is provided on the remaining 45 corporations. 21 of them had dissolved, merged or gone into receivership, 16 did not have to file such information with the Commission because their stocks were not listed on any public exchange, and eight were not included in the compilation for miscellaneous reasons. Presumably, the stocks of the 16 corporations not listed on any exchange were closely held and largely subject to control by their owners, while in the case of the 15 companies in receivership, control over policy was almost completely taken away from the owners by court action.

It is clear, therefore, that for most of the large corporations ownership and control have become largely separated. This condition appears to be particularly characteristic of the corporations which have travelled furthest along the road of corporate development, such as the railroads and others of the older corporations. The lack of significant stockholder control over corporate policies may be regarded as the typical condition toward which the large corporate units have been tending. The main controls must be looked for elsewhere.

### Management the Center of Policy Formation

Since the owners of the larger corporations do not in most cases exercise a significant degree of control over corporate policy, attention must be shifted to the management which is at the center of the forces influencing policy formation. The officers and directors of a corporation are responsible for the development of policies and their execution. Together, the officers and directors are usually in a position to exercise a large measure of control over corporate affairs.

The separate roles of directors and of officers in policy formation vary from corporation to corporation and have been too little studied to make possible any precise distinction between their respective roles. The process of policy formation is a highly complex one in which many persons and groups may take part. To what extent the directors as a group usually act as a body of review for the policy proposals developed by the officers of a corporation, and to what extent they initiate policies is not clear and presumably varies from corporation to corporation. It is sufficient for this outline of the structure of controls to recognize that policy formation for most of the large corporations centers in the management, consisting of both officers and directors. Once this is recognized, it is possible to treat each producing unit as a going organization in which policy is continuously being formed and efforts made to carry it out. The management at the center of this process influences

policy to a major extent as a result of its position in the organization, while a variety of both market and non-market controls limit the controls which the management itself is in a position to exercise.

The more important nonmarket controls impinging on corporate managements can roughly be grouped into three categories, (1) the corporate community, (2) other organized interest groups, and (3) government.

### The Corporate Community

If each corporate management were quite independent of every other corporate management and subject only to market controls in its development of policy, the structure of nonmarket controls might be of only secondary importance. In fact, however, there is a great deal of interrelationship between corporate managements. Partly through interlocking directorates, partly through the activities of the major financial institutions, partly through particular interest groupings, partly through firms rendering legal, accounting, and similar services to the larger corporations, and partly through intercorporate stockholdings, the managements of most of the larger corporations are loosely brought together in what might be called the corporate community.

#### Interlocking Directorates

The formal interrelationships between the larger corporations brought about through interlocking directorates can be seen by examining the directorates of the 200 largest nonfinancial corporations and the 50 largest financial corporations already listed in chapter VII.<sup>10</sup> In 1935 only 25 of these corporations had no director in common with at least one other corporation on the list.<sup>11</sup> One corporation, the Western Union Telegraph Co., interlocked with 35 other corporations on the list. An indication of the interlocking between the 250 corporations is given in chart I, which shows all the interlocks between each of the 100 corporations having the most interlocks and between these and all the other corporations in the list of the 250 largest. The 100 corporations with the most interlocks are listed in the vertical columns in order of the frequency of interlocks, while the same corporations plus all the others among the 250 corporations with which they interlock are listed horizontally. The interlocks are indicated in the respective squares.<sup>12</sup> Other interlocks not shown in the chart are given in appendix 12, table VI.

Altogether there were 3,544 directorships on the boards of these 250 corporations in 1935, and these positions were held by 2,725 individual directors. The

distribution of the directorships, among individuals, is shown in table III. Between them, 400 men held nearly a third of these directorships; 1,000 men held over half.

TABLE III.—Number of directors and their holdings of directorships in 200 largest nonfinancial and 50 largest financial corporations, 1935

Number of directorships held by a single individual	Total number of directors	Total number of directorships held	Cumulative number	
			Directors	Directorships
9 .....	1	9	1	9
8 .....	3	24	4	33
7 .....	6	42	10	75
6 .....	6	36	16	111
5 .....	19	95	35	206
4 .....	48	192	83	398
3 .....	102	306	185	704
2 .....	303	606	488	1,310
1 .....	2,234	2,234	2,722	3,544
Total .....	2,721	3,544		

Source: See appendix 12, table VII.

The extent of this interlocking and the magnitude of the assets involved are indicated in table IV. Out of the 250 corporations, 151 companies, whose assets amounted to nearly three-quarters of the combined assets of the 250, were interlocked with at least three other companies in the group. There can thus be no question of the very extensive formal interlocking of the large corporations.

Just how important for policy formation these interlocks may be is a much more difficult matter to determine. It would be easy to overestimate their importance, since many directors are relatively inactive. On the other hand, it might be equally easy to underrate the influence on policy which results from the climate of opinion developed in part through these interlocks. That the interlocks are not primarily brought about through inactive directors is suggested by the fact that 59 of the 83 directors holding 4 or more directorates in this group of corporations were in an active position in at least one of the corporations they served, being chairman of one of the boards, a member of an executive or finance committee or an executive officer of the corporation.<sup>13</sup> Such men are likely to take a responsible share in the development of policy in any corporation in which they hold a responsible position. But until more study has been given to the process of policy formation, the actual role of interlocking directorates cannot be clearly determined.

#### Intercorporate Minority Stockholders

A second influence tying together many of the large corporations results from extensive intercorporate stockholdings. In the case of at least 30 of the 250 large corporations, 10 percent or more of the voting

<sup>10</sup> See appendix 12.

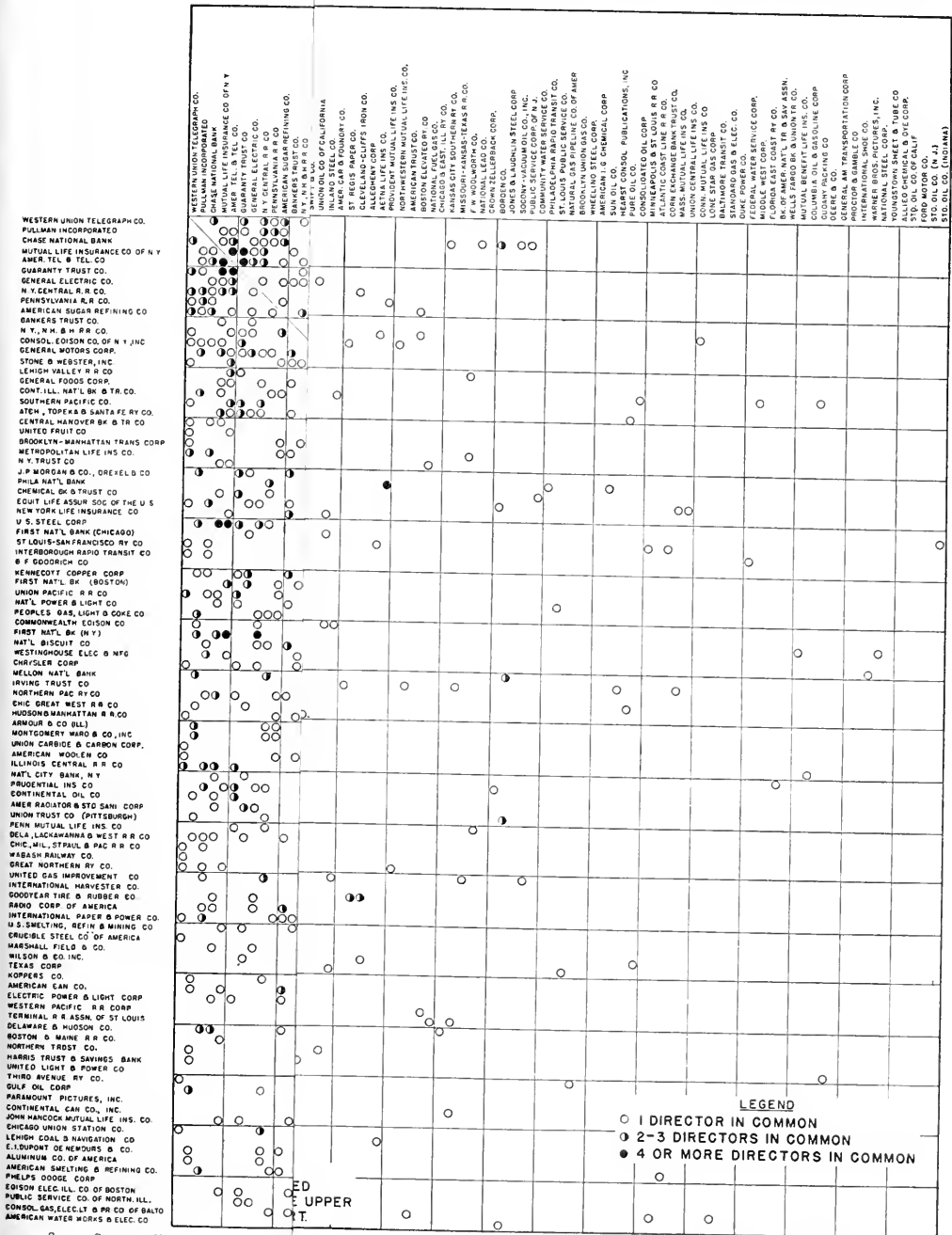
<sup>11</sup> Appendix 12, table II.

<sup>12</sup> It should be noted that, since the chart sets forth the interlocks of each corporation with other corporations, each interlock between the 100 corporations appears twice, once opposite the name of each of the corporations interlocked.

<sup>13</sup> See appendix 12.



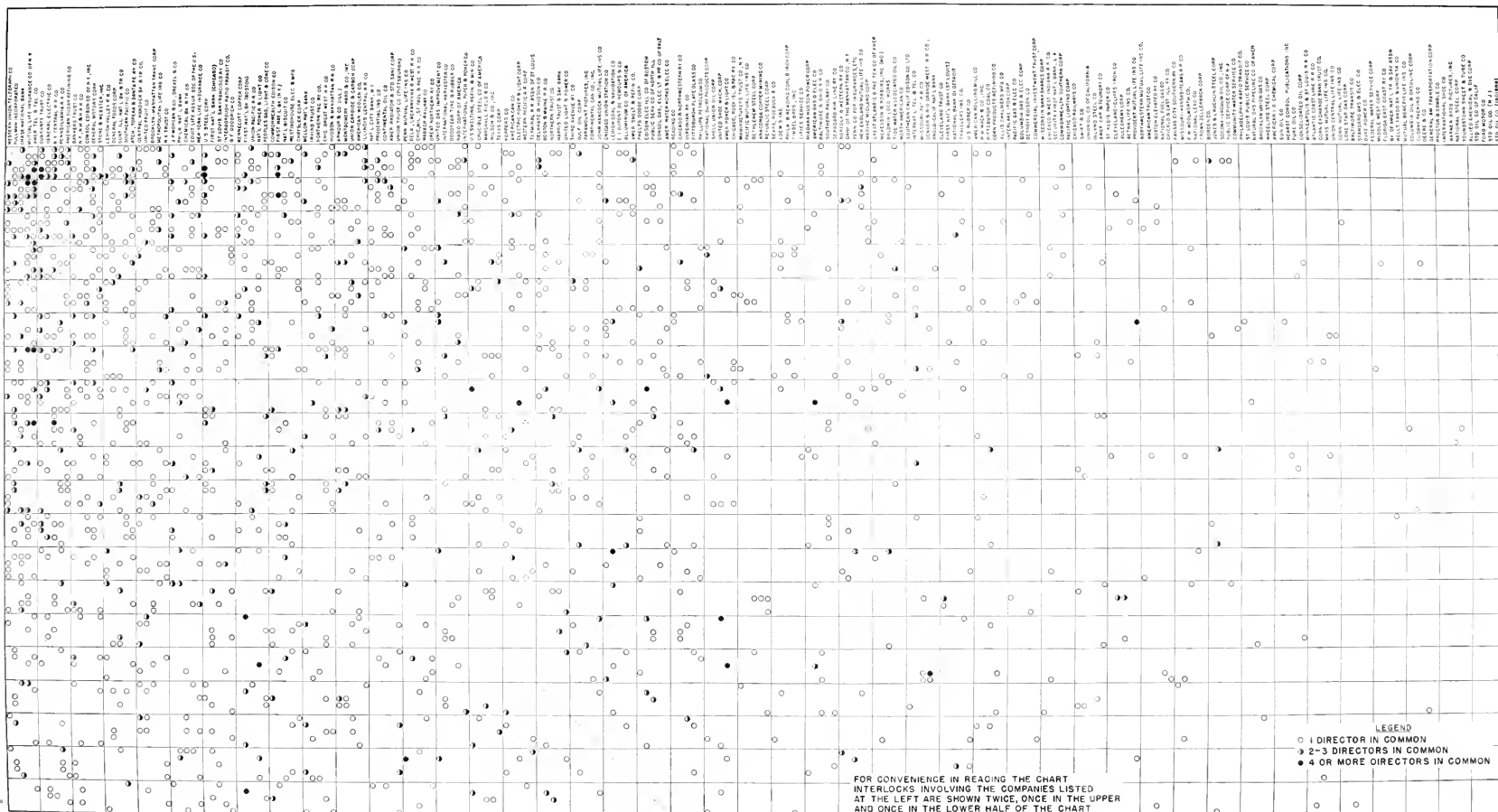
## INTERDER OF NUMBER OF INTERLOCKS



Source: See appendix 12



## INTERLOCKING DIRECTORATES AMONG 250 LARGE CORPORATIONS, 1935 ARRANGED IN ORDER OF NUMBER OF INTERLOCKS



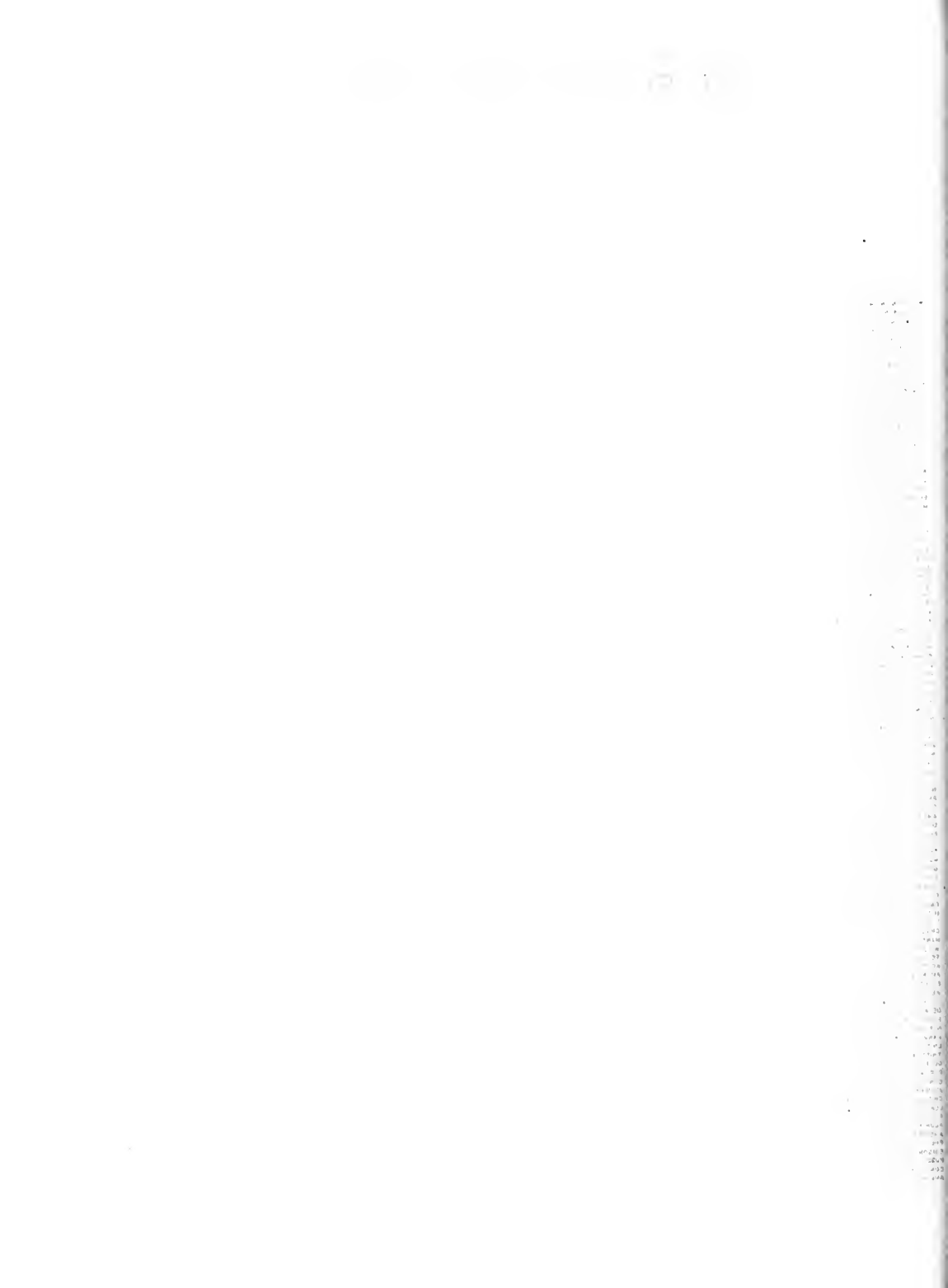


TABLE IV.—Corporations interlocking with one or more other corporations among 200 largest nonfinancial and 50 largest financial corporations, 1935

Type of corporation	All corporations		Corporations interlocking with one or more other companies			Corporations interlocking with two or more other companies			Corporations interlocking with three or more other companies		
	Number	Total assets	Number	Assets	Percent of total assets	Number	Assets	Percent of total assets	Number	Assets	Percent of total assets
Industrial.....	107	\$25,140.6	91	\$23,022.3	91.6	71	\$16,261.9	64.7	60	\$14,645.5	58.3
Utilities.....	54	25,222.2	46	22,886.3	90.7	34	20,153.2	79.9	26	16,049.6	63.6
Railroads.....	39	23,874.0	38	23,705.9	99.3	36	22,796.2	95.5	31	20,146.1	84.4
Banks.....	30	20,707.6	30	20,707.6	100.0	28	20,223.5	97.7	22	16,921.3	81.7
Other financial.....	20	19,939.4	20	19,939.4	100.0	18	19,045.8	95.4	12	16,095.1	80.6
All corporations.....	250	114,914.2	225	110,281.5	96.0	187	98,480.6	85.7	151	83,857.6	73.0

Source: Number of companies derived from chart L, chap. IX and from table VI of appendix 12; the assets are obtained from appendix 10, table I and appendix 12, table I.

power derived from stock ownership was held directly or indirectly by another corporation in the group or by one of the 9 financial or holding companies not included in the list of 250 corporations but clearly part of the corporate community.<sup>14</sup> In all but one of these cases, the corporate stockholders were the only stockholders with 10 percent or more of the voting power. These holdings are listed in table V for those 7 of the 250 corporations filing such information with the Securities and Exchange Commission or with the Interstate Commerce Commission.

It is clear that while none of these corporations are legally controlled by another corporation, they are not entirely independent of each other. Often, a corporation holding 10 percent or more of the stock of another corporation can influence the policies of the latter to a significant extent and in many cases even determine its management.<sup>15</sup> Such large intercorporate stockholdings and the many smaller holdings of a similar character help to build up the interrelationships between the big corporations which form the basis of the corporate community.

#### Interrelationships Resulting from the Servicing of the Large Corporations

A third factor binding the larger corporation into a corporate community derives from the activity of the firms which provide these large corporations with financial, legal, accounting, and similar services. Of these services, the financial are undoubtedly the most important. In the single year, 1935, 175 of the 200 largest nonfinancial corporations issued new securities. This meant that in most cases they had to call on one or more of the financial or investment firms to underwrite and distribute these issues. Most of such financing is handled by a very small number of firms. According to figures obtained from the Securities and Exchange Commission, 56 percent of all the corporate underwriting in 1935 was initiated by only 10 firms.

<sup>14</sup> Wherever more than 50 percent of the voting power of one corporation was controlled directly or indirectly by another corporation, the former has been treated in this report as a subsidiary of the latter and not as an independent corporation.

<sup>15</sup> The financial community often speaks of a 20-30 percent stock ownership as constituting "working control."

As an almost necessary result of such activity, each of the more important investment firms is drawn ultimately into the affairs of a number of the big corporations.

The more important accounting firms also act, though presumably to a lesser extent, as a binding force in the corporate community. The ten largest accounting firms certified 52 percent of the accounts of all the accounting firms (754 in number).<sup>16</sup>

In the same way, the leading legal firms, advertising firms, engineering firms, public relation counsellors, and espionage firms are apt to have a score or more of the larger corporations as their clients and come into intimate contact with one or another phase of their major policy problems.

All of these firms rendering special services to the big corporations necessarily deal with some important phase of corporate policy for each of the corporations which they serve. Almost inevitably they contribute in conferences and individual discussions to that climate of opinion within which corporate policies are formed, carrying from one corporation to another some degree of common background and temper of thought which adds a measure of unity to the corporate community.

#### Interrelationships Resulting from the Control over Investment Funds

A fourth factor making for interrelationship among the larger corporations results from the activities of the larger financial corporations in the use which they make of the investment funds at their disposal.<sup>17</sup> In 1935,

<sup>16</sup> Based on the period Jan. 1, 1925 through Dec. 31, 1935; data furnished by the Securities and Exchange Commission.

<sup>17</sup> It is often held that control over the larger nonfinancial corporation entities in the larger banks and insurance companies. This may have been the relationship which developed in other countries in which banking concentration has been carried to a very much greater extent than in the United States. In this country, however, there is much evidence that, though the larger banks and insurance companies are an integral part of the corporate community and are dominated by much the same group of individuals, the basis of controls in the corporate community is too diffuse to justify the statement that control centers in the banking institutions. A bank is quite as likely to be dominated by an industrial, railroad, or utility group as to dominate such a group. Unquestionably, the banks and insurance companies play a significant role in the structure of controls, but more as one of the many bases for the controls exercised by the dominant groups than as the center of such controls. See below pp. 160-163.

TABLE V.—Holdings by the 250 large corporations of more than 10 percent of voting stock of the 200 largest nonfinancial corporations, Dec. 31, 1935<sup>1</sup>

Corporation issuing stock	Corporation holding more than 10 percent of the outstanding votes	Per- cent of votes held
Allied Chemical & Dye Corporation.....	Solvay American Investment Corporation.....	22.6
Atlantic Coast Line R. R. Co.....	Atlantic Coast Line Co.....	26.9
Boston & Maine R. R. Co.....	Pennead Corporation.....	19.3
Brooklyn Union Gas Co.....	New York, New Haven & Hartford R. R. Co. <sup>2</sup> .....	26.2
Chicago & Eastern Illinois Ry. Co.....	Kopper's Gas & Coke Co.....	<sup>3</sup> 23.9
Chicago, Rock Island & Pacific Ry. Co.....	Virginia Transportation Corporation.....	<sup>4</sup> 42.7
Consolidated Oil Corporation.....	St. Louis-San Francisco Ry. Co.....	14.2
Denver & Rio Grande Western R. R. Co.....	Petroleum Company of America.....	11.3
Detroit Edison Co.....	Missouri Pacific R. R. Co.....	<sup>5</sup> 50.0
Electric Power & Light Corporation.....	Western Pacific R. R. Corporation.....	<sup>6</sup> 50.0
Illinois Central R. R. Co.....	American Light & Traction Co.....	16.2
International Paper & Power Co.....	North American Co.....	19.0
Lehigh Valley R. R. Co.....	Electric Bond & Share Co.....	56.6
Missouri Pacific R. R. Co.....	Union Pacific R. R. Co.....	<sup>7</sup> 29.0
National Power & Light Co.....	Chase National Bank.....	13.3
Norfolk & Western Ry. Co.....	Pennsylvania R. R. Co. (indirectly held through the Pennsylvania Co.).....	<sup>8</sup> 30.1
Pacific Gas & Electric Co.....	Allegheny Corporation.....	46.4
Philadelphia & Reading Coal & Iron Corporation.....	Electric Bond & Share Co.....	47.1
Public Service Corporation of New Jersey.....	Lehigh Coal & Navigation Co.....	12.8
Public Service Company of Northern Illinois.....	Pennsylvania Railroad Co. (held directly and indirectly through the Pennsylvania Co.).....	<sup>9</sup> 44.5
Reading Co.....	North American Co. (held directly and indirectly through Western Power Corporation).....	<sup>10</sup> 15.3
Republic Steel Corporation.....	National City Bank, trustee.....	25.2
Seaboard Air Line Ry. Co.....	Baltimore & Ohio R. R. Co. (proportionate share in above trust).....	21.7
Standard Oil & Electric Co.....	United Corporation.....	13.9
United Light & Power Co.....	United Gas Improvement Co.....	28.6
Wabash Ry. Co.....	Commonwealth Subsidiary Corporation.....	28.6
Western Indiana Ry. Co.....	Baltimore & Ohio R. R. Co.....	42.2
	New York Central R. R. Co.....	25.0
	Cleveland Cliffs Iron Co.....	10.3
	Pennead Corporation.....	13.9
	Standard Power & Light Corporation.....	53.6
	Kopper's Gas & Coke Co.....	28.1
	Pennsylvania R. R. Co. (indirectly held through Pennsylvania Co.).....	<sup>11</sup> 56.2
	Baltimore & Ohio R. R. Co. (deposited with Chase National Bank as trustee).....	<sup>12</sup> 41.8

<sup>1</sup> Compiled from materials published by the Securities and Exchange Commission and from information in *Moody's Investment Manuals*, 1936. For details of procedure and definition, see appendix 18, section 25.

<sup>2</sup> This block of stock is held through a subsidiary, the Boston Railroad Holding Co., 100 percent of whose common stock is owned by the parent.

<sup>3</sup> Owner disclaims beneficial interest. See appendix 18, section 25, for discussion.

<sup>4</sup> This company is a subsidiary of the Chesapeake & Ohio Ry. Co. The parent does not admit beneficial interest in the stock of the Chicago & Eastern Illinois Ry. Co.

<sup>5</sup> *Moody's Manuals*, 1936, "Joint Control: Company is controlled by Western Pacific R. R. Corporation and Missouri Pacific R. R. Co."

<sup>6</sup> 23.8 percent of the voting power of the Illinois Central R. R. Co. is held by the Union Pacific R. R. Co. directly, the remaining 5.2 percent is held by the Railroad Securities Co., whose entire capital stock is, according to *Moody's Manuals*, owned by "Kansas City Industrial Land Co., which is affiliated with Union Pacific R. R. Co." The proportion of this 5.2 percent owned by the Union Pacific cannot be determined inasmuch as the precise nature of the relationship between Kansas City Industrial Land Co. and Union Pacific is not clear.

<sup>7</sup> The Pennsylvania R. R. Co. owns all of the outstanding stock of the Pennsylvania Co.

<sup>8</sup> The Pennsylvania R. R. Co. is reported by the Securities and Exchange Commission to own what is computed at 25.1 percent of the voting stock of the Norfolk & Western Ry. Co. directly. The Pennsylvania Co., all of whose outstanding stock is owned by the Pennsylvania R. R. Co., owns 28.2 percent more but the proportionate interest of the parent company (Pennsylvania R. R. Co.) is not disclosed. According to *Moody's* the Pennsylvania R. R. Co. owns 44.5 percent of the voting stock of the Norfolk & Western Ry. Co.

<sup>9</sup> This figure represents the estimated holdings, directly and indirectly, of the North American Co. in the Pacific Gas & Electric Co. Computations from Securities and Exchange Commission and *Moody's* data show that 9.1 percent of the votes of the latter are held directly. The Western Power Corporation, a subsidiary of the North American Co., is reported to have held 10.8 percent of the votes of the Pacific Gas & Electric Co. However, an analysis of the balance sheet of the Western Power Corporation and of the holdings of the North American Co. show that the latter holds about 57 percent equity in the former. The stock of the Pacific Gas & Electric Co. is almost the sole asset of the Western Power Corporation; so 57 percent of the 10.8 percent amounts to 6.2 percent of the votes outstanding in the Pacific Gas & Electric Co., bringing the holdings of the North American Co. to 15.3 percent of the voting power, which figure is entered in the table.

<sup>10</sup> Pennsylvania Co. is related to Pennsylvania R. R. Co., as described in <sup>1</sup> above. According to *Moody's Manuals*, 1936, the more accurate figure is 48 percent.

<sup>11</sup> The proportionate interest of the Baltimore & Ohio R. R. Co. is not shown although the railroad is probably owner of the entire amount.

banks, insurance companies, and similar financial corporations owned approximately a quarter of all the outstanding bonds of American corporations.<sup>18</sup> No figures are available on either the bonds of the larger corporations which are owned by the larger banks and insurance companies or the extent to which the leading financial institutions have provided funds to the larger corporations on the basis of short-term loans. Both sums must be of considerable magnitude and the basis of very real influence over corporate policies. Some controls are likely to arise at the time debts are being incurred, but most particularly they arise when difficulty is met with in the repayment of debts. Banks or insurance companies once having loaned funds to a corporation, or having purchased its bonds, must keep in close touch with its activities. If the corporation gets into financial difficulties, they are directly concerned in keeping it solvent or with its reorganization. Because of the magnitude of the funds for which they are responsible, the financial institutions are often able to exercise a major influence in such proceedings and, after reorganization, to occupy a strategic position in relation to the reorganized corporation. Thus, as a result of the investment funds which they control and the opportunities which arise in connection with their use, the relatively small number of large financial institutions tends to increase the interrelationship in the corporate community.

#### Corporate Interest Groupings

When the interrelationships between the larger corporations are carefully examined, company by company, groupings of more closely related companies emerge. Sometimes several corporations are closely bound together, as in the case of the Electric Bond & Share Corporation and the three major systems in which it owns a large minority interest and which it manages on a contractual basis. Sometimes corporations have several directors in common as in the case of the United States Steel Corporation and the American Telephone & Telegraph Co. with four common directors, and Pullman, Inc. whose directorate of 14 included in 1935 two partners of J. P. Morgan & Co. and four representatives of the First National Bank of New York. Such a large number of common directors combined with other evidences of close association is taken to be sufficient grounds, not for classifying the corporations as subject to the same control, but as subject to some measure of common influence and properly classed as belonging to a common interest group. More often the basis for grouping corporations together is less concrete and grows out of an examination of the historical background of each corporation, as well as its current

<sup>18</sup> Twentieth Century Fund, Inc., *Debts and Recovery*, New York, 1938, p. 287.

position. Interlocking directorates alone are not sufficient evidence of a close interrelationship between corporations. Neither is the possession of a minority stock interest alone evidence of close association. Nor is a single instance of the underwriting of a corporation's securities by a particular investment house evidence of a close association between the two. But when a corporation was initially promoted by a particular investment firm, when all its new security issues are handled by that firm, when the two have directors in common, and when other evidence of a less precise nature points to a close association between the companies, it seems appropriate to treat them as part of a single interest group.

A grouping of corporations on a basis of such evidence rests to a very considerable degree on matters of judgment. No hard and fast classification of corporations into interest groups can be made, partly because of the difficulties of establishing the actual interrelationships in each situation and partly because of the uncertainty as to when the interrelationships are sufficiently close to justify classing corporations as part of a single interest group. Yet the evidence that such interest groups exist is so overwhelming that an effort has been made to outline the most important of such groups, at least in a tentative form.

A careful study of the interrelationships between the large corporations disclosed eight more or less clearly defined interest groups which so far overshadowed other groups as to justify the limitation of consideration to these eight groups. In appendix 13, these eight groups are delineated and described in some detail. Together they include 106 of the 250 largest corporations<sup>19</sup> and nearly two-thirds of their combined assets. The eight groups, each named according to some characteristic of the group, are listed in table VI, with an indication of the assets falling within each group. No attempt is made to include the assets of smaller corporations falling within the same sphere of influence though many such could be named. In chart II the 106 corporations included in these eight groups are so arranged as to show the interlocking directorates interconnecting these corporations and also the interlocks with 122 other large corporations not included in the eight groups. Though interconnection through common directors was only one type of evidence used in grouping the corporations, the chart clearly brings out the closer relationship between the companies grouped together than those not so grouped. In 16 cases corporations grouped together had four or more directors in common and in 73 cases had two or three directors in common.

TABLE VI.—*Eight interest groups and their assets, 1935*<sup>1</sup>

(Millions of dollars)

	Morgan-First National	Rockefeller	Kuhn, Loeb	Mellon	Du Pont	Chicago	Cleveland	Boston	Total assets
Industrials . . . . .	3,920	4,262	0	1,648	2,232	858	1,066	425	14,411
Rails . . . . .	9,678	0	9,963	153	0	0	0	0	19,794
Banks . . . . .	4,421	2,351	548	672	396	2,505	338	740	12,061
Utilities . . . . .	12,191	0	342	859	0	813	0	554	14,759
Total assets . . . . .	30,210	6,613	10,853	3,332	2,628	4,266	1,404	1,719	61,025

<sup>1</sup> For a discussion of the interest groups and the allocation of corporations to them, see Appendix 13; the assets are derived from table I of appendix 10, and from Moody's *Banks* for 1936.

The largest of the eight interest groups, that classified as the Morgan-First National group, includes 41 of the 250 larger corporations. It has been referred to as the Morgan-First National group, not because the separate companies are controlled by either J. P. Morgan & Co. or by the First National Bank of New York or by these two institutions in combination but rather because much of the interrelation between the separate corporations allocated to this group is brought about through these two institutions. Morgan & Co. and the First National have had a long history of close working relationships begun by the elder J. P. Morgan and the elder George F. Baker and subsequently developed on an institutional basis. Of the 39 corporations grouped with these 2 financial institutions, 10 had 2 or more directors in common with J. P. Morgan & Co. in 1935. However, information on interlocking directorates was in most cases incidental to the classification of a corporation to this particular group. In the case of 15 corporations classed with the Morgan-First National group, there was no interlocking of directorates with either of the 2 financial institutions while in 4 cases, corporations included in the 250 large corporations, were interlocked by directors with 1 or both of these institutions, but were not included in the 41 corporations constituting the interest group because other evidence pointed to the absence of a close relationship or was insufficient to substantiate such a relationship.

The corporations assigned to the Morgan-First National group include outstanding enterprises in most of the major lines of economic activity. The group is made up of 13 industrial corporations headed by the United States Steel Corporation and including corporations mining iron ore, copper, and coal, extracting oil, making steel and brass, fabricating electrical equipment, railway equipment, and plumbing and heating apparatus, and supplying bakery products, mail-order services, and Pullman services; 12 utility corporations, including the American Telephone & Telegraph Co., the International Telephone & Telegraph Co., and power companies controlling, in 1935, 37 percent of the electric-generating capacity of the country, 11 major railroads

<sup>19</sup> This consists of the 200 largest nonfinancial corporations shown in appendix 10 and the 50 largest banks by total resources as reported in Moody's *Banks* for 1936.

or railroad systems controlling 26 percent <sup>20</sup> of the first-class railroad mileage of the country; and 5 financial institutions including the 2 for which the group has been named. While it is certain that the extensive economic activity represented by these corporations is in no sense subject to a single centralized control, it is equally certain that the separate corporations are not completely independent of each other. The climate of opinion within which their separate policies are developed is much the same, many of the same people participate in the formulation and review of the policies of the separate corporations, financing is carried on for the most part through the same channels, and in many other ways this group of corporations constitutes an interrelated interest group.

The second interest group in importance has been named the Kuhn-Loeb group and consists primarily of railroads whose financing has for many years been handled by Kuhn-Loeb & Co. It includes 13 major railroads or railroad systems which together controlled approximately 22 percent <sup>21</sup> of the first-class railroad mileage in the country in 1935, The Western Union Telegraph Co., and one bank. Since it has never been the policy of Kuhn-Loeb & Co. to maintain more than a few of its contacts by means of directorships, these corporations are not linked to Kuhn-Loeb & Co. through directors except in three cases. There appears to be a much less close grouping of these corporations than in the case of most of those assigned to the Morgan-First National group.

While the two largest interest groups stem primarily from the activities of financial institutions, three interest groupings stem to a large extent from family interests not growing directly out of financial institutions. These are the groups named, respectively, as the Rockefeller, the Mellon, and the Du Pont groups. The largest of these, the Rockefeller group, includes six large oil companies and one bank. The oil companies are all successors to the old Standard Oil Co. which was dissolved by court decree in 1911, and together they control more than half the assets of the oil industry. In each of these companies, John D. Rockefeller and Rockefeller-endowed institutions together hold significant minority stock interests, usually the only large stock interests, representing from 7 to 24 percent of the voting power in the different companies. Just how much control is exercised by Mr. Rockefeller over these companies is not clear. Very possibly it is mostly negative, but none the less real. Without going so far as to class these corporations as under common control, it is appropriate to treat them as belonging to a single interest group. The largest bank in the country, the Chase National Bank, is also assigned to this

interest group on grounds indicated in appendix 13.

The second of the family interest groups, the Mellon group, rests to a very much larger extent on ownership than is the case with the other groups covered. It includes nine industrial corporations, one railroad, two utilities, and two banks. In the case of at least six of these corporations, a majority of the outstanding stock appears to be held by members of the Mellon family and their immediate associates. These closely held companies include the Aluminum Company of America, the Gulf Oil Corporation, the Pittsburgh Coal Co., and the Koppers Co., which indirectly controls many gas manufacturing plants. Most of the companies in this group center in Pittsburgh. Two Pittsburgh banks included in the group appear to be simply an integral part of the interest group rather than the center from which it derives its unity.

The third family group, the Du Pont group, includes only four companies, three industrials, and one bank, but all of these are of top rank in respect to size. Control over the separate companies arises primarily from substantial minority stock holdings. One Du Pont family holding company owned approximately 25 percent of the voting stock of the E. I. du Pont de Nemours Co., which, in turn, owned approximately the same proportionate interest in the General Motors Corporation. Another family holding company owned approximately 20 percent of the voting power in the United States Rubber Co. In each of these cases the minority stock holdings were sufficient to give the Du Pont interests working control in the corporations listed and the management of these companies reflects this fact. The bank included in this interest group appears to be incidental to the composition of the group.

The remaining three of the eight major interest groups appear to stem neither from particular financial institutions nor from particular families but rather to bring together corporations whose activity centers in particular localities. For this reason they have been named for the regions in which they center, the Chicago group, the Boston group, and the Cleveland group. In each case the group includes one or more banks located in the center for which the group is named, industrial activities carried on in the vicinity, such as meat packing in Chicago, shoe machinery in the vicinity of Boston, and steel in the Cleveland area, and in the case of two of the groups, local utilities. Just how closely knit these groups are it is not possible to say, but there can be little doubt that they exist as roughly inter-related groups.

While only 90 of the 200 larger nonfinancial corporations have been included in one or another of the eight groups, there are others with which one or another of these groups is fairly closely related. The International Paper and Power Corporation might properly be classed

<sup>20</sup> Interstate Commerce Commission, *Statistics of Railways in the United States, 1935*

<sup>21</sup> *Ibid.*

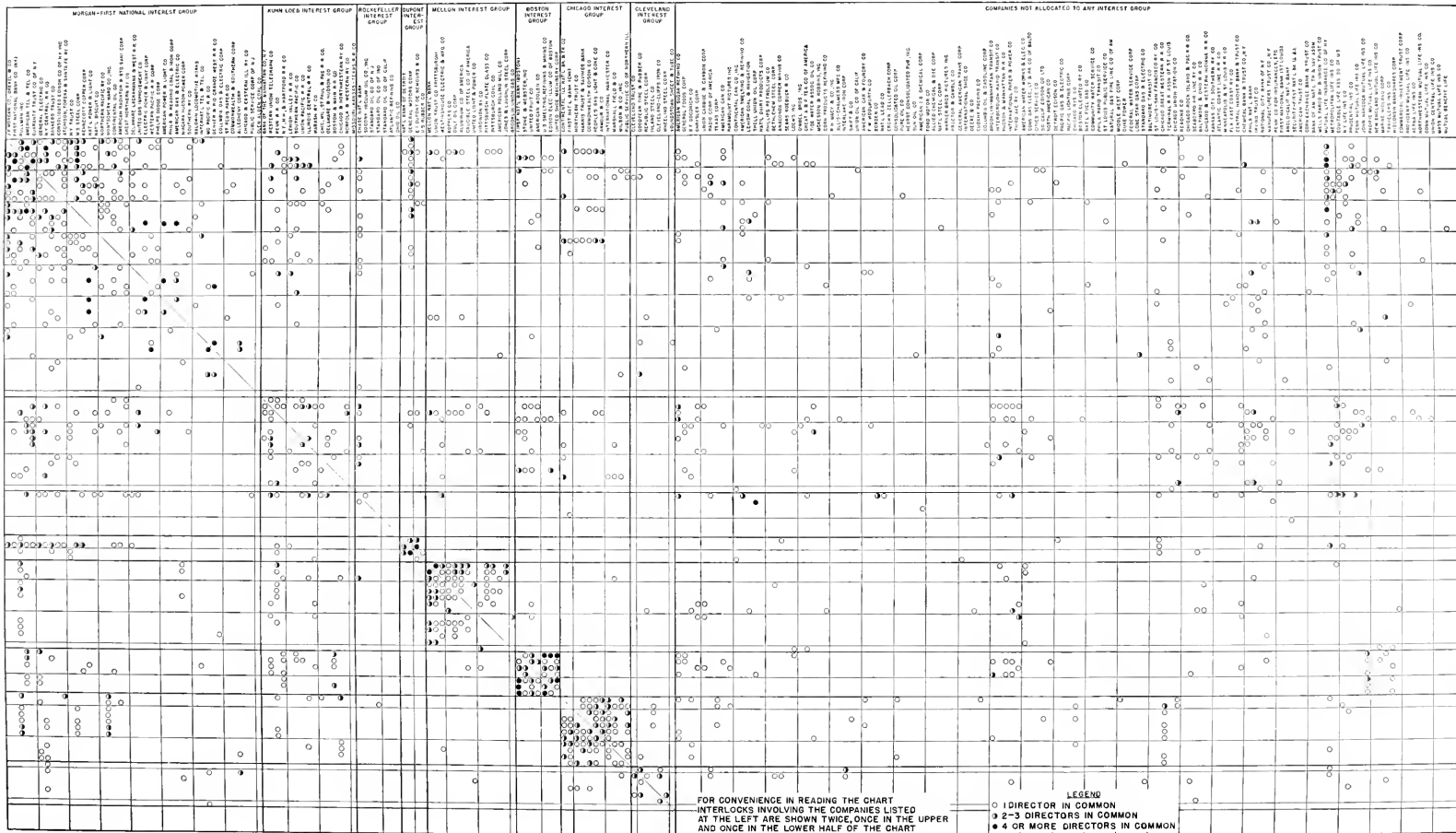


## INTERLOCKING TO INTEREST GROUPINGS

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# INTERLOCKING DIRECTORATES AMONG 250 LARGE CORPORATIONS, 1935 ARRANGED ACCORDING TO INTEREST GROUPINGS



Source: See appendix 12 and appendix 13.



with the Boston group, but because 16.6 percent of its voting power was held by the Chase National Bank, it was not so classed. Other corporations are related to the eight interest groups in lesser degree. Likewise, some of the corporations not closely linked to the eight groups are linked to each other in varying degrees.

Finally, the eight interest groupings depicted above are by no means independent of each other. Thus, while there were two Morgan partners and four representatives of First National on the board of directors of Pullman, Incorporated, there were three representatives of the Mellon interests. Similarly, these two groups meet on the directorate of Texas Gulf Sulphur Co., which in 1936 accounted for two-thirds of the sulphur produced in the United States. Each of the interest groups comes in direct relation to each other group in connection with one or another of its activities.

It is apparent from the foregoing analysis that the corporate community, though not formally organized, does build up into significant and more or less interrelated interest groupings. It is clear that corporate policies must be influenced by these interest groupings, though just how far only extensive study can disclose. It is also well recognized that the choice of personnel of corporate management is to a significant extent influenced through these groupings. In the structure of controls, the controls exercised by this corporate community among the larger corporations are of major importance. The influence of these controls also extends beyond the larger corporations. Many of the individuals making up this corporate community also hold responsible positions in medium-sized and smaller corporations. The larger banks can exercise some influence over smaller banks through the system of banking correspondents and over smaller companies through the loan of funds. The larger corporations are often in a position to influence the managements of enterprises from which they purchase their raw material or to which they sell their products. The nonmarket controls exercised by the corporate community thus extend beyond the larger corporations. The main importance of the corporate community, however, lies in the controls exercised over the policies of the larger corporations, through them affecting the whole American economy.

### **Formal Organizations Representing Economic Interests**

In addition to the informal but none-the-less significant groupings of controls which center in the corporate community, there are certain economic-interest groupings operating through formal organizations, which have a significant impact on the policies adopted by specific producing units. The most important of the economic interests formally organized are those of business, labor, farmer, and consumer. In each of these

fields of economic interest, there are national organizations which aim to protect the special economic interests of their members. Associated with these national organizations or independent of them are smaller economic-interest groupings organized on a regional or functional basis which aim to further the particular economic interest with which they are concerned. These organizations function partly through the collection and dissemination of information to their members, partly through measures aimed to influence public thinking, partly through their impact on the process of government policy formation, and partly through the development of common policies which their separate members are encouraged to adopt. The importance of these organizations in influencing directly or indirectly the policies of producing units varies so from organization to organization that no simple analysis can indicate the role they play in the structure of controls. The most that can be done is to indicate some of the more important organizations, the scope of their membership, and examples of the kind of controls they are in a position to exercise. This can most easily be done by taking up separately the organizations built around each of the four major economic interests.

### **Organizations Based on Business Interests**

The many organizations built on business interests do not fit into any simple pattern of activity. Some organizations, like the American Bankers Association, the Association of American Railroads, the Edison Electric Institute, the National Manufacturers Association, and the American Iron and Steel Institute, represent to a very considerable degree an extension of the corporate community, being made up of, or to a significant extent dominated by, the larger companies. Other organizations, like the National Retail Dry Goods Association and the Association of Retail Druggists, are made up for the most part of relatively small enterprises. Between these extremes lie many trade associations which are neither an integral part of the corporate community nor yet mainly outside it. Likewise, the functions performed by such associations vary in the widest degree.

In 1937 there were, in addition to the finance, railroad, and utility associations, over 2,400 national and interstate trade associations, each tying together, loosely or more closely, separate enterprises in particular industries. To these must be added the 4,100 State and local trade associations whose importance is primarily local, and the 5,400 local chambers of commerce.<sup>22</sup>

Not all of these associations have the same significance for the structure of controls. Those which are primarily loose organizations, largely fraternal and promotional in their activity, presumably have little influence on policies adopted with respect to the use of

<sup>22</sup> These are not all members of the U. S. Chamber of Commerce.

resources. On the other hand, closely-knit associations which present a united front for an industry in dealing with labor, in disciplining recalcitrant members, in developing practices affecting prices and production, in influencing public thinking, and in affecting government policy may exercise a very considerable measure of influence over the policies developed in the use of resources. Some business associations concentrate on one particular type of activity, such as trade relationships or government policy, while others carry on a more diverse activity. The significance of particular business associations for the structure of controls thus varies from association to association. Similarly, the character of its membership affects the significance of a particular association. An association in an industry made up of a few large corporations may add little to the structure of controls, being simply an additional avenue through which the large corporations exercise their controls. On the other hand, in an industry in which the individual producers are weak, the combination brought about through the trade association may represent a very considerable increase in the non-market controls which are exercised within the industry. Only as the wide variety of roles played by business associations are recognized can their place in the structure of controls be clearly seen.

#### Major Business Associations

Probably the five most important business associations are the national associations in the fields of finance, railroads, utilities, manufacturing, and all business. The American Bankers Association has a membership which in 1938 accounted for over 90 percent of the banking assets of the country.<sup>23</sup> The Association of American Railroads represents within its membership practically the whole of the railway mileage of the country. The Edison Electric Institute covered through its membership approximately 90 percent of the country's electrical generating capacity. The National Association of Manufacturers included manufacturing enterprises employing roughly a third of the workers in manufacturing industries. The Chamber of Commerce of the United States has not specialized but brings into a single organization 1,000 local chambers of commerce, 500 trade and other business associations, and 10,000 separate corporations and individuals carrying on all types of activities.

With the possible exception of the United States Chamber of Commerce, these national associations appear to be more or less closely tied into the corporate community. Six of the 31 officers and directors of American Bankers Association are officers or directors of six of the country's 30 largest banks. The railroad and utility associations are almost entirely composed

of the corporations listed among the 200 largest, and their directorates are for the most part made up of representatives of these large enterprises. The Chairman of the Board and six others of the 18 officers of the National Association of Manufacturers are responsible executives of the 106 largest industrial corporations, while 12 of the 70 directorates of the association were drawn from these largest corporations, and others of the largest corporations are represented on the association's more important policy committees.<sup>24</sup> Even in the case of the United States Chamber of Commerce, there is an important interlocking with the large corporations, 16 directors and officers out of 57 being associated with the management of 28 of the 250 larger corporations.

The important role which such organizations aim to play in the American economy is suggested in their published literature. In one of its bulletins, the National Association of Manufacturers states that it is "the medium through which American industry is able to voice a united opinion on vital national questions" and that it is "the only organization exclusively representing the interests of American industry."<sup>25</sup> The United States Chamber of Commerce indicates that its primary function is "to obtain the matured judgment of business upon national questions, and to present and interpret those views to the agencies of government and to the public."<sup>26</sup>

While the functions actually performed by these associations are varied and complex, there is a certain similarity in the character of their activities. Each of them acts as a center for the gathering of information and its dissemination to members. Each of them facilitates the development of common standards and policies within its particular sphere of productive activity. Each of them acts to develop agreement among its members with respect to governmental policies, and campaigns are carried on to prevent the adoption by government of policies believed to be harmful to their interests and to encourage the adoption of favorable policies. Finally, each of these business associations makes it a part of its program to try to influence public attitudes with respect to the activities and aims of its members and public policies likely to affect their interests.<sup>27</sup> All of these association activities are aimed to influence, directly or indirectly, the policies adopted in the use of resources and constitute a more or less significant part of the structure of controls.

<sup>23</sup> One hundred companies contributed approximately 45 percent of the total income of the National Association of Manufacturers in 1936. *Hearings before a Subcommittee of the Committee on Education and Labor, United States Senate, 74th Congress, 8, Res. 296, pt. 17* (Exhibit 3799).

<sup>24</sup> *Ibid* (Exhibit 3799).

<sup>25</sup> Pamphlet published by the Chamber of Commerce of the United States, *The Chamber of Commerce of the United States, Its Organizations, Functions and Services*, p. 4.

<sup>27</sup> S. Res. 206, op. cit.

<sup>22</sup> See *List of Members of the American Bankers Association*, Mar. 31, 1938.

### Other Business Associations

In addition to the five major associations listed above, there are the numerous more specialized trade and business associations. These associations play varying roles in separate industries, some being concerned particularly with labor relations, while others emphasize trade or pricing problems, government policies, public attitudes, or lines of activity less significant for the structure of controls.

The activity of these associations in relation to labor has varied all the way from attack on labor organization to the active acceptance of collective bargaining with representatives of labor. The National Metal Trades Association, for example, has made a regular practice of furnishing its members with operatives for industrial espionage, guards for struck plants, and strikebreakers up to 70 percent of the total employees in a plant.<sup>28</sup> When this association undertakes to support one of its members in a strike situation, it assumes full control over the conduct of the strike, and any member who settles a strike on terms other than those laid down by the association is liable to suspension or expulsion from the association. An employer who enters a closed-shop agreement with the union is ineligible for membership in the association. The American Iron and Steel Institute, without going to the extreme of the Metal Trades Association, has, in the past, acted for the industry in opposing the organization of workers, as is evidenced by the full-page advertisements published by the Institute in 1936 in 375 leading American newspapers, stating the position of the steel industry in opposition to the organizing campaign of the Steel Workers Organizing Committee.<sup>29</sup> On the other hand, labor organization has come to be accepted as a normal part of the organization of many industries, and regional or national collective bargaining agreements are developed between the trade associations and labor unions, as in the case of clothing and coal. Whichever type of policy is adopted by a trade association, the controls it exercises are a part of the structure of the controls which influence economic policies.

In the field of price problems, the activities of trade associations are not clearly defined. The antitrust laws make direct price controls illegal except as specific types of price control, such as resale price maintenance, are specifically legalized. At the same time, many trade associations do carry on price reporting and similar services which have an effect on price behavior

without directly controlling prices. In particular industries their activity undoubtedly facilitates price collusion among members of the industry or the maintenance of a system of price leadership. No attempt can be made here to appraise the significance of such controls. All that can be said is that they constitute an integral, though often minor, part of the structure of controls.

The activities of business associations in the fields of government policy and of public thinking are very much less direct in their effects on the use of resources but are, nevertheless, significant for the structure of controls. Government policies can affect to a greater or less degree, not only the operations of the national economy, but also the structure of controls itself, while public attitudes are basic to the maintenance or modification of any given structure. Both of these will be discussed after the other major economic-interest groups have been considered.

### Labor Organization

Paralleling the large corporations and business associations are the organizations of labor, which occupy an increasingly important place in the structure of controls. Labor organizations exercise a measure of direct control over the use of resources both via the market, as they affect the relative bargaining strength of the parties and thereby the characteristics of the bargain in the labor market, and also administratively, to the extent that conditions of industrial operation are laid down by labor organizations or arrived at jointly by the representatives of labor and the representatives of business. In addition, labor organizations, like business organizations, affect the use of resources indirectly through their influence on government policy and on public thinking. A relatively detailed analysis of their place in the national economy is given in appendix 14. For the present purpose it is sufficient to point to the scope of membership in labor organizations, to the scope and character of the two large national federations of labor unions, and to the character of the activities of the separate labor unions, whether members of the federations or independent of them.

### Membership in Labor Unions

No completely reliable figures are available as to the membership in labor unions, but the figures of membership made public by the national federations and the more important independent unions together amounted to approximately 8,000,000 in 1938.<sup>30</sup> This is approximately 55 percent more membership than was reported

<sup>28</sup> This and the following information on the activities of the National Metal Trades Association is derived from testimony before the La Follette Committee, *op cit.*, pt. 3, p. 809 ff.

<sup>29</sup> In spite of the position stated by the American Iron and Steel Institute the largest single member, the United States Steel Corporation, and certain other members, subsequently adopted a policy of cooperation with the steel workers union and entered into agreements with it, leaving the so-called "little steel" fighting collective bargaining.

<sup>30</sup> The approximate character of this figure arises primarily from the difficulty of defining membership. Should a person who is temporarily behind in the payment of dues be classed as a member of a labor union? Is the membership of locals correctly reflected in the dues paid by locals to their national organizations?

in 1920, the previous peak of union membership, and nearly two and a half times the membership reported in 1929.<sup>31</sup> Altogether, this reported membership in unions in 1938 represents approximately a quarter of the total employee population.

#### Major Labor Organizations

The great bulk of labor union membership is in unions which are affiliated with one or the other of the two major union federations, the American Federation of Labor and the Congress of Industrial Organizations. The total reported membership in 1938 affiliated with these organizations and unaffiliated is given below:

##### Membership of unions:

Affiliated with the American Federation of Labor.....	<sup>1</sup> 3, 600, 000
Affiliated with the Congress of Industrial Organizations.....	<sup>1</sup> 3, 800, 000
Unaffiliated trade unions.....	<sup>2</sup> 750, 000
Total.....	8, 150, 000

<sup>1</sup> Official figures of the American Federation of Labor and the Congress of Industrial Organizations.

<sup>2</sup> Estimated from the 1937 figures given in appendix 14

These two major labor organizations are primarily concerned with the servicing and strengthening of their constituent unions in their collective bargaining activity, with the encouragement of governmental policies favorable to their interests and the defeat of government policies believed to be harmful to them, and with influencing public attitudes respecting the activities and aims of their members and public policies likely to affect their interests. All of these activities are aimed at influencing more or less directly the policies adopted in the use of resources and the two national federations constitute a significant part of the structure of controls.

#### Labor Unions

The separate labor unions affiliated with the two major labor organizations or independent of them have as their primary functions the influencing of industrial policies through collective bargaining. Their influence on industrial policy ranges all the way from participation in such industrial problems as the settlement of the grievances of individual workers, through collective bargaining as to the terms of employment, to participation with management in developing the broad policies of an industry. Some activities like the settlement of grievances, though important to the individual worker, are of only secondary importance to the structure of controls. But labor-union participation in determining wage rates and hours of work, and union participation in the development of other elements of industrial pol-

icy, are of prime importance to the structure of controls.

Some impression of labor-union participation in policy formation can be obtained by an examination of the trade agreements entered into between organized workers and managements. These agreements, which record the results of collective bargaining or negotiation between representatives of workers and of their employers, range from very brief and simple statements of wages, hours, and other conditions of work to highly developed and elaborate regulation of many details of industrial relationships. They range from local agreements between unions and individual employers or local associations of employers to national agreements which set standards for a whole industry and are negotiated by national collective bargaining machinery. The customary form of local building or printing trades agreements is representative of activities local in scope, while the national agreement in the men's clothing industry, first negotiated in 1937 between the Amalgamated Clothing and the National Trade Association, is an outstanding example of an agreement on a national scale, affecting 135,000 union members and covering virtually the entire industry.<sup>32</sup>

Agreements in the bituminous-coal industry cover broad districts, but not the entire market. However, the Appalachian agreement, negotiated by representatives of the United Mine Workers and the operators from some eight States, is customarily worked out prior to the agreements for other parts of the country, and this agreement sets standards which influence all other agreements in the industry. The type of agreement which is becoming of increasing importance is that which involves a labor union and a single great corporation, the agreement being negotiated between the leading officers of the union and executives of the corporation. Such agreement typically covers many plants, often in several States. In industries dominated by a few large corporations, the agreement with one company tends to set the pattern for others. This has happened in the past 3 years in the case of agreement between the United Automobile Workers and the General Motors Corporation which gave the pattern for union agreements with other automobile companies; that between the Steel Workers Organizing Committee and the Carnegie-Illinois Steel Corporation, a subsidiary of the United States Steel Corporation, followed by other steel agreements; the United Rubber Workers agreement with the Firestone Tire & Rubber Co. followed by similar agreements with other rubber companies; and that between the Sinclair Oil Corporation and the Oil Workers International Union. In such agreements, the more important subjects covered

<sup>31</sup> Based upon 1920 data in appendix 14 and upon unofficial estimate of the Bureau of Labor Statistics for 1929.

<sup>32</sup> *Monthly Labor Review*, July 1937, pp. 23-24.



usually include union recognition, physical conditions and working time, wages and labor supply, employment policies, and job protection. Since strikes, lockouts, or stoppages of any sort are usually outlawed during the life of the agreement, they customarily provide machinery for the enforcement of the agreement and the settlement of disputes during its life. In various degrees, such agreements reflect the participation of labor unions in the development of the industrial policies most immediately affecting labor.

In some industries, labor unions have gone beyond the immediate problems of wages, hours, and working conditions to participate in the development of broader elements of industrial policy. In the clothing industries, for example, both the Amalgamated Clothing Workers and the International Ladies' Garment Workers Union have long records of working with the employers for stabilization of competitive conditions and efficient operation. Under the agreements in the full-fashioned-hosiery industry, the union and the employers have attempted to deal with a difficult competitive situation arising from the introduction of new machinery in certain sections of the industry. In the bituminous coal industry, a joint Mechanized Mining Commission has been established for the study of problems arising from mechanization. These and similar activities reflect the interest of labor organizations in the broader phases of industrial policy.

In addition to their activity in connection with collective bargaining and the development of broader industrial policies, individual trade-unions, like the two federations of labor, parallel the activity of business associations by seeking through appeals to public opinion and through direct pressure on government to secure the adoption of policies which are in the interest of their members. Union representatives appear frequently at national and state legislative hearings on measures dealing with wages, hours, social security, relief, public works, labor relations, and other matters of economic importance to workers.

The participation of labor organizations in the development of industrial policy and their influence on public policy make such organizations an integral part of the structure of controls. A consideration of their full significance in American society lies outside the scope of this report. As the structure of the economy becomes increasingly a matter of organized relationships and administrative controls, labor organizations take their place as major structural elements in the economy.

### Farmer Organizations

Organizations of farmers constitute a third type of economic-interest grouping which is of importance to the structure of controls. Though less closely organ-

ized than either business or labor groupings, the many farm organizations, particularly the marketing and purchasing cooperatives, play a significant role in the field of agriculture and in reflecting the farm interest in the development of Government policy and in public discussion.

In terms of strictly economic activity, the most important farm organizations are the marketing and purchasing associations. In the marketing season of 1937-38 there were over 10,900 marketing or purchasing associations controlled by farmers with a combined membership of 3,400,000 and doing approximately \$2,400,000,000 worth of business.

Some of the farm cooperatives, particularly milk cooperatives, play much the same collective bargaining role for farmers as is played for labor by its unions. Thus a milk cooperative may carry on negotiations with the big milk distributors as to the wholesale price of milk. Other cooperatives supervise the flow of farm products to market, as in the case of the larger fruit growers' cooperatives. For most basic farm products the cooperatives are not in a position to influence significantly price or the flow of products to market except as they reduce the purchasing or marketing margin. Other farm cooperatives purchase farm products as well as market them. Through these farmer-controlled associations, the farmers extend their influence into many activities closely related to farm production.

In addition to the farmer-controlled cooperative associations there are the National Grange, the Farmers Union, and the Farm Bureau. The membership of these organizations for 1938 is given below:

	Membership <sup>1</sup>
National Grange.....	800,000
Farm Bureau.....	400,000
Farmers Union.....	92,000

<sup>1</sup> Furnished by the offices of the respective organizations in Washington.

While these national farm organizations have little to do directly with the use of resources, their influence on governmental policy where it impinges on the interests of farmers is significant. Like business and labor organizations, these farm organizations, though less closely unified, constitute an important element in the structure of controls.

### Consumer Organizations

The fourth major economic-interest group, that of consumers, is relatively little organized. The leading national organization, the Cooperative League of the United States, is primarily a league of consumer-controlled producing enterprises affiliating 1,770 local cooperative enterprises in 1938 and with a total membership of 965,000.<sup>33</sup> Other specific consumer interests, such as health and education, are reflected in national

<sup>33</sup> A small number of these local cooperative enterprises are producers cooperatives rather than consumer cooperatives. Data furnished by the office of the League in Washington.

organizations, but there is no major national organization representing the consumer interest as a whole and apart from producing cooperatives.

### Government Units

Government units, Federal, State and local, provide the third set of nonmarket controls which, together with the market controls, constitute the essentials of the control structure. Because Government units are the primary organizations in the American economy through which the individuals and groups in the community are built into a social unity, they have powers and responsibilities which transcend those of any other type of organization, and the policies they adopt can vitally effect the use to which resources are put.

The controls which Government units can exercise arise primarily from organization, from the authority placed by society in the hands of government. To some extent they rest on the possession of the instruments of production, particularly public buildings and the public domain. Under certain circumstances they arise from the command over purchasing power. But in the main, the controls exercised by government rest on the complex social relationships which give government its special character.

### Government Production

Certain of the controls exercised by government are directly concerned with Government production. The operation of the Post Office, the Army and Navy, the highway and educational systems, health and fire protection, all represent activities which in many ways parallel the productive activity of private enterprises but in which there are special advantages in Government operation. In certain areas the Government, through its productive activity, exercises controls beyond the boundaries of the particular administrative unit, influencing the market, as in the case of its handling of parcel post and in the operation of certain utility systems on a yardstick basis. But in the main, the productive activities carried on by Government units are aimed primarily at supplying specific products or services. Such activity differs in one important particular from business production, namely that of financing. Government units can charge the cost of production either directly to the individuals receiving the products or services as a business has to do, or it can spread the costs of production more widely through taxation. The latter is the procedure employed in the case of public education, fire protection, health protection, and many other services which benefit not only the immediate recipient but others as well and for which the community as a whole is taxed. In spite of this significant difference in financing, however, the controls exercised by Government units through their produc-

tive activity are essentially the same in nature as those exercised by other big administrative units. They involve administrative rather than market coordination within the administrative units and, to that extent, narrow the coordinating role of the market in much the same manner as the large corporate enterprise.

### Canalizing Controls

The second major type of control exercised by government is through laws, rules, and regulations which canalize activity without administering it. The scope of this type of activity is difficult to measure and equally difficult to grasp. In 1935 there were 175,000 separate political jurisdictions<sup>34</sup> and, except perhaps in the case of school districts, the bulk of these exercised some controls of a canalizing character—police and fire regulations, building regulations, property protection, health protection, traffic regulation, and a host of other controls essential to the complicated activity of everyday living.

The basic importance of these types of controls to the structure of the national economy can be seen by examining a few of the more important. Fundamental to the conduct of present-day business activity are four sets of canalizing rules set up by government—the protection of property, the enforcement of contracts, the rules for bankruptcy and the laws which make possible the development of corporations and their exercise of legal powers. Without these canalizing controls exercised by government, modern business, as it is known today, would be impossible. Parallel to the protection of property is the protection of collective bargaining, each being essential to protect the basic interests of the suppliers of one of the factors of production.

In addition to the establishment of the basic rules of the game, Government units canalize specific lines of activity through the development of special regulations and regulatory bodies. The regulation of trade practices and the canalizing of industrial policies are partly the concern of State and local governments but have increasingly become a concern of the Federal Government, as business enterprises increasingly affect interstate commerce. This latter development is reflected in the creation of the Interstate Commerce Commission, the Federal Trade Commission, the Federal Communications Commission, the Federal Power Commission; the Securities and Exchange Commission, and other lesser regulatory commissions and agencies. It is not possible here to appraise the extent or effect of the canalizing and sometimes administrative controls exercised through these agencies, yet it is clear that they constitute a significant element in the structure of controls.

<sup>34</sup> See appendix 15.

In the field of business-labor relations, Government units have increasingly developed rules of conduct comparable to the already well-developed rules covering the relations between business units. Many State laws and the interpretations of the State courts have determined the rights of organized labor to engage in such activities as strikes, picketing, and certain types of boycotting to strengthen their bargaining position, just as the right of business to lock out its employees has long been recognized. Federal legislation and the Federal courts have further defined the activities permitted to employers and organized workers in specific respects. The importing of strikebreakers across State lines and the use of the yellow-dog contract by employers have been curbed, while the sit-down strike and secondary boycotts have similarly been outlawed. The National Labor Relations Act has brought the regulation of labor relations in industries operating in interstate commerce primarily within the sphere of the Federal Government. Under the terms of the act, the National Labor Relations Board is responsible for the protection of collective bargaining in the sphere of interstate trade and is building up a code governing business-labor relationships comparable to the code governing property relationship developed through the courts. It thereby provides a framework within which the balance of controls between employers and workers are being worked out. In areas subject to particular Federal intervention, namely the railroads and more recently the maritime industry, the Federal Government has gone farther in providing, through the National Mediation Board and the Maritime Labor Board, the specific machinery for settlement of business-labor disputes.

These various types of facilitating and regulatory activities involve the relation of local, State, and Federal Governments to all or most types of industries. As has been noted, they are not administrative in character but rather provide the framework of rules within which the activities of individuals are carried on.

#### Industrial Policies

A third type of control exercised by government units arises when a government agency directly participates in the development of industrial policies. This is the type of control exercised in the railroad and public utility fields in which rates are developed through the interaction of regulatory commissions, the utility enterprises, and the courts; in the shipping industry where government subsidies are given to induce an expansion in the American Merchant Marine; and in the field of agriculture in which subsidies are given to build up the soil and to limit the production of soil-depleting crops. How far public utility regulation and other controls over industrial policy on the part of government have been successful in facilitating the

effective use of resources it is not the function of this report to consider. But it is clear that they constitute a significant element in the structure of controls.

#### Fiscal Policies

The fourth main type of controls exercised by government which is significant to the national economy is that exercised through its fiscal policies. In this field it is primarily the fiscal policies of the Federal Government which are important. The Federal Government's responsibility for the money medium, its power to establish tariffs, and its great taxing, borrowing, and spending powers all place it in an outstanding position to influence the money flows which stimulate or dampen economic activity. Through its fiscal policies the Federal Government can, to a significant extent, convert current savings by one part of the community into current expenditures by another part, shift buying power from one group to another, and direct savings into capital formation. Whatever fiscal policies it adopts, the fiscal activity of the Federal Government is so important in relation to the whole economy that it must significantly affect its functioning.

#### The Relation Between Government Units and Other Elements in the Control Structure

In outlining the major controls exercised by Government units, the latter have been treated as if they were relatively independent units. But it has already been pointed out that many of the controls exercised by the organized interest groups operate through government. Similarly, some of the controls exercised by the corporate community operate through government. As a result, the policies adopted by Government units and the controls they exercise reflect to a considerable degree the balance of controls in the whole community. Government thus represents more than any other single organization, the meeting ground of both the common and the conflicting interests of different economic groups and individuals and constitutes the major focus of the structure of controls.

#### Conclusion

The preceding chapters on the organizational structure and the price structure disclosed the large extent to which the use of resources is not controlled by the market. In this chapter an attempt has been made to sketch the structure of the nonmarket controls which significantly affect the use of resources. The three main elements in this control structure have been outlined—the corporate community with its many ramifications and its climate of opinion; the major organizations representing the economic interests of business, labor, farmer, and consumer; and, finally, the Govern-

ment units through which the conflicting interests of different economic groups are developed into a more or less effective working compromise. These three sets of nonmarket controls combined with the market controls already discussed appear to constitute the main essentials of the control structure.

In this outline of the structure of controls, the focus has been on the character and locus of the major non-market controls, just as, in the chapter on the structure

of prices, primary emphasis was given to the character and locus of market controls. No attempt has been made to show how the nonmarket controls actually affect the policies adopted in the use of resources or how they interoperate with the market controls. The operating effect on the use of resources of the combined market and nonmarket controls is a subject requiring intensive analysis but lying beyond the scope of this report on the structure of the American economy.

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## CHAPTER X.—CONCLUSION

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The American people are faced with a basic national problem in the extensive idleness of men and machines. Resources of manpower and materials and skills are available to establish a much higher level of living than now exists. The serious failure to use these resources to the full is placing our democratic institutions in jeopardy. The maintenance of democracy requires that an adequate solution be found to the problem of keeping resources fully employed. The question must arise as to what national policies appropriate to a democracy can be developed which will insure reasonably full use of national resources, employment opportunities for all workers at reasonable wages, opportunities for the investment of savings with reasonable expectations of profits or a safe return, opportunities for the exercise of the organizing and managing abilities developed in modern industry, outlets for the exercise of initiative in ways which will be of advantage both to the individual and to the community.

This is a problem so broad in its scope and so basic in its character that no simple solution is likely to be found nor can a solution be found in a day or a year. If a democratic solution is to be worked out it will be the product of many minds working through a period of years. It will require an increased understanding of the problem on the part of the leaders of business, labor leaders, farm leaders, political leaders, and other leaders of public thinking. It will require continuing analysis by the technicians of different phases of the problem and a more detailed delineation of the characteristics of the national economy. It will require the careful elaboration and discussion of alternative lines of policy in order that gradually a workable solution can be developed and be gradually put into practice.

As a single small step toward the development of such a solution, an effort has been made in this report to sketch in the main structural characteristics of the

American economy. This is done with the idea that such a sketch could throw light on the character of this basic national problem and might disclose the direction in which possible solutions might lie. If the report serves to clarify the problem and help provide a more effective frame of reference for the development of national policies, it will have accomplished its full purpose.

The report attempts to bring all the salient structural features of the national economy into focus in the short compass of a few hundred pages. Such a condensed summary of the economic structure necessarily lacks in detail and has to omit many things which are in themselves important yet of secondary importance to the national economy as a whole. Some essential elements of the structure are not blocked in because of the lack of data or because of the mischances of research organization. As in the case of a report on any subject, the determination of the elements to be treated as essential rests with the individuals responsible for the report and is the result of their judgment. Whatever gaps or distortions occur in this report should be eliminated through discussions and further research. A reasonable measure of general agreement as to the structural characteristics of the American economy would appear to be an essential step toward a satisfactory solution of this basic problem.

In this concluding chapter there is no advantage to be gained in summarizing the content of the foregoing chapters. Each chapter is in itself such a condensed summary of the field covered that further summary is useless. The structure stands as presented in the preceding eight chapters, each sketching in one aspect of the whole economy. It must be left to the reader to combine these separate aspects in his own mind into a unified conception of the national economy as a whole.



# APPENDIX 1.—A CONSIDERATION OF THE VALIDITY OF THE BUREAU OF LABOR STATISTICS PRICE INDEXES<sup>1</sup>

## Introduction

### The Problem

The present discussion is devoted to an effort to appraise the usefulness of the Bureau of Labor Statistics indexes of wholesale prices for studies of the degree of rigidity and the amplitude of movement of the prices of the commodities to which they relate.

The validity of these indexes as tools for such an analysis has been seriously questioned. It has been pointed out that, in many markets, price changes take forms which price indexes fail to reflect. Thus, Willard L. Thorp, at a meeting of the American Economic Association in December 1935,<sup>2</sup> contended that price indexes could not portray important price modifications achieved through changes in collateral terms of sale, through the granting of special treatment to favored groups of customers, or through changes in the quality of the product.

In view of the fact that the Bureau of Labor Statistics wholesale price indexes have been used as a basis for analysis in this report, it is essential that these criticisms of the indexes be examined and some indication of the reliability of the Bureau of Labor Statistics series be obtained.

### Nature of the

### Bureau of Labor Statistics Indexes

The validity of such criticism is largely dependent upon the precise nature of the Bureau of Labor Statistics indexes, and the manner in which they are compiled. The 784 individual price series which comprise the Bureau of Labor Statistics weighted price index cover an exceedingly wide range. They include figures for raw materials, for semimanufactured goods and for highly processed commodities; for standardized products and for highly specialized, trade-marked articles. Some prices in the series represent open market prices, uniform for all sellers and to all purchasers. Others are for commodities whose prices vary widely for different groups of buyers, with each sale a virtually independent transaction. For a few of the products included in the Bureau of Labor Statistics series, there are almost as many prices in actual effect at any given time as there are purchasers in the market.

In its efforts to secure price statistics adequately representative of the breadth of American industry, the

Bureau of Labor Statistics has had recourse to two major sources of information. Three hundred and eighty-three, or slightly less than one-half of the total number of indexes included in the weighted average, are obtained directly from manufacturers or sales agents, usually in the form of weekly price reports. These reports quote the nominal or list price, and also specify the major terms of sale, such as trade and cash discounts.

For 367 commodities, or the bulk of the remainder, price quotations are taken directly from standard trade journals. Of the remaining 34 items, 31 are reported by boards of trade, trade associations and the like, and 3 are compiled from reports by Federal or State bureaus.

The distribution by source of principal commodity groups is revealed in table I.

TABLE I.—Source of wholesale price quotations, February 1937<sup>1</sup>

Source	Farm products	Foods	Hides and leather products	Textile products	Fuel and lighting	Metals and metal products	Building materials	Chemicals and drugs	House furnishing goods	Miscellaneous	Total
Standard trade journals .....	56	81	12	23	15	55	28	80	17	367	
Manufacturers or sales agents .....	6	36	29	81	9	74	49	3	61	383	
Boards of trade, associations, etc. ....	3	5	8	8	1	9	6	6	3	31	
Federal or State bureaus .....	2	1	1	1	1	1	1	1	1	3	
Total .....	67	122	41	112	24	130	86	89	61	784	

<sup>1</sup> Wholesale prices, February 1937, Bureau of Labor Statistics, p. 12.

The wide variety of products included in the series virtually precludes the possibility of maintaining uniformity in the character of the indexes, even for those based upon direct reports. In general, the Bureau attempts to present, as nearly as possible, plant net prices for the usual trade sale. The price is, therefore, on an f. o. b. plant basis, with trade and cash discounts deducted. No effort is made to allow for special class discounts to favored groups of buyers, or for quantity discounts on very large purchases.

In the case of prices taken from trade papers, it is often impossible to meet these general requirements. In a large number of instances the quotations are on a delivered basis. In others, the terms of sale are omitted or inadequately stated. Consequently, it is impossible to maintain strict comparability between prices taken from trade journals and those obtained on the basis of direct reports.

The commodity to which each series applies is usually defined as precisely as possible, in order to preserve

<sup>1</sup> Appendix 1 was prepared by Saul Nelson.

<sup>2</sup> The American Economic Review, vol. 26, No. 1, supplement, March 1936, *Price Theories and Economic Realities*, by Willard L. Thorp, pp. 15-22.

price comparability through time. For nonstandard merchandise, such as clothing or machinery, it is often extremely difficult to devise such a definition. For price series taken from trade journals, the description of the commodity given in the source must necessarily be accepted by the Bureau, even though it may lack the degree of precision considered desirable.

#### Factors Affecting Reliability of the Bureau of Labor Statistics Indexes

The reliability of the indexes is directly conditioned by the frequency with which price changes take forms which the indexes fail to reflect, and by the extent to which such indirect changes modify the nominal, reported price.

In the vast majority of business transactions price is but one of the many elements of the sales bargain. The nominal price may be modified by any of a wide variety of discounts, allowances, or extras. Moreover, what the purchaser receives is not merely a physical commodity, but is that commodity subject to any understandings or agreements such as guarantees, services, and the like, which the seller may grant to his customer. Any change in any of these elements affects the net price—the true values exchanged—no less immediately than does a change in the nominal price level.

The most important of these indirect price variants are:

1. *Changes in the collateral terms of sale.*—Modifications in cash or trade discounts, changes in credit terms, price or quality guarantees, services performed by the seller for the buyer, freight, and advertising allowances and the like all affect the true price of a commodity no less immediately than changes in the nominal or list price.

2. *Special treatment of favored customers or groups of customers.*—Important changes in price may affect only a selected segment of the market. Special quantity discounts may be granted to very large purchasers, or the distinction may be made on the basis of function rather than of size. In some industries, the bulk of the product may be sold on the basis of long-term contracts, with the reported price quotation affecting only a small fraction of the total sales.

3. *Secret rebates and concessions.*—The allowance of secret rebates and concessions may render the reported prices and published terms of sale virtually meaningless, especially during the prevalence of a buyers' market.

4. *Geographic price variations.*—The Bureau of Labor Statistics indexes portray price variations at some specific point—usually the plant or some principal market. For some commodities, notably those in the food group, prices at more than one market are reported. Localized price reports may not, however, adequately reflect price trends throughout the nation.

5. *Changes in the product.*—The impossibility of adequately describing complex commodities renders it extremely difficult to express changes in design or in quality in terms of price.

#### Scope of the Investigation

Two distinct techniques of investigation were pursued in an effort to appraise the extent and importance of these indirect forms of price modification.

1. The detailed price structure of certain industries was studied. National Recovery Administration files and reports, reports and investigations of the Federal Trade Commission, and the congressional investigation of the American Retail Federation constituted the principal sources of information for this approach.

2. Bureau of Labor Statistics price series for a wide selection of commodities were compared with prices derived from data published by the Bureau of Census and the Bureau of Mines. In general, Census and Mines data closely reflect actual net returns to the producer after the deduction of all direct and indirect concessions. Consequently a comparison of this sort afforded a fairly reliable measure of the ability of the Bureau of Labor Statistics indexes to measure on an annual basis the extent of changes in net price over a period of years.

#### Changes in Collateral Terms of Sale

The importance of changes in collateral terms of sale was clearly recognized during the National Recovery Administration period. Industries whose codes included some form of minimum price provisions, or which established open price systems, found it necessary to guard against evasion of such provisions by exercising minute supervision over collateral terms of sale. The number of such restrictions ran well into the hundreds.

In interpreting Bureau of Labor Statistics price statistics, therefore, it is necessary to consider the possibility of important changes in price being effected through changes in terms of sale. The Bureau itself makes every effort to secure information as to the most important terms, but it would be a physical impossibility for it to analyze the price structure for each commodity included in the weighted index in complete detail.

Some of the more important terms of sale include the following:

1. *Discounts and allowances*—
  - (a) Cash discount.
  - (b) Trade discount.
  - (c) Quantity discount.
  - (d) Freight allowance.
  - (e) Advertising allowance.



- (f) Promotional allowance.
- (g) Extras, small quantities or unusual size.
- (h) Trade-in allowance.

2. *Services and guarantees*—

- (a) Price guarantees.
- (b) Quality guarantees.
- (c) Sales assistance.

3. *Other terms*—

- (a) Credit terms.

The importance of each of these elements varies considerably from industry to industry. In the sale of automobiles and radios, for example, the nominal price may be greatly modified by the granting of a generous allowance on a used car or radio set. Extravagant quality guarantees were at one time a favorite method of cutting prices on automobile tires without any change in the nominal list. Similarly, in the coal industry, certain producers endeavored to evade code price restrictions by issuing guarantees of heat content which they knew were impossible of fulfillment.

The extent to which changes in terms affect the list price may be illustrated by examining a specific industry. The National Recovery Administration files contain an excellent record of the price quotations of fertilizer producers during the code period. These can be compared with the Bureau of Labor Statistics quotations for the same product.

Under the fertilizer code, all producers were required to file a complete list of their prices and terms for all grades of fertilizer. Mixed fertilizer is commonly sold on a delivered "to the farm" basis. The price quoted is uniform for a defined geographic area and freight charges are absorbed by the producer.

The price structure of the fertilizer industry is somewhat complex—though not more so than that for many other industries. The quoted list price during the code period was subject to a number of collateral terms, of which the most important were the following:

1. *Cash discounts and credit terms*.—Large discounts from the list price, ranging as high as 15 percent were allowed for fertilizer purchased on or before certain dates. Thus, one company allowed a discount of 15 percent for fertilizer purchased and paid for before March 15, 14 percent for payment before April 15, 13 percent for payment by May 15, and 12 percent for payment by June 15. In addition, a further discount of 1 percent for cash was allowed. If payment was made prior to March 1 the seller paid interest at the rate of 8 percent. For payment after July 1 the purchaser was required to pay interest at the rate of 7 percent.

2. *Trade discounts*.—Most fertilizer was distributed through agents during the code period. On cash sales these agents received a discount of 5 percent, while on

credit sales, when the agent guaranteed payment of the note, he received an additional 5 percent.

3. *Quantity discounts*.—Agents received additional discounts ranging from 1 to 3 percent if they handled over 500 tons during the season. (As in the case of a few other industries, it did not matter whether the agent secured all the 500 tons from one producer or handled an aggregate of 500 tons from a number of producers. The same discount was allowed in either case.) On direct sales, consumers received quantity discounts of 3 to 5 percent.

4. *Packaging allowances and extras*.—If instead of specifying that fertilizer be packed in 200-pound burlap bags, the buyer was willing to accept delivery in bulk, he was granted a discount of from \$1 to \$1.50. If, on the other hand, he specified smaller bags, or preferred cotton bags to burlap bags, the price was increased from 50 cents to \$2 per ton.

5. *Transportation allowances*.—If delivery was accepted at the plant, or at a railway station, instead of at the farm, varying allowances were granted, depending on the distance trucked. If, on the other hand, the quantity purchased was less than a carload, an added charge was made.

6. *Price guarantees*.—In addition to these quoted terms, it has at times been the practice in the fertilizer industry to guarantee prices against decline during the selling season. In other words, a farmer who ordered fertilizer in March would be assured the benefit of any cut in prices announced prior to, say, July. The guarantee might also insure to the buyer as low a price as that charged by any competing producer. Apparently these guarantees usually consisted of informal understandings between the agent and the purchaser.

It would be completely impracticable for the Bureau of Labor Statistics to express each one of these terms of sale in its price quotations. Instead, it reports prices for a single set of conditions. In the case of fertilizer, the price quoted is that which an agent is required to pay on cash sales. This represents a net cash price on carload lots of 200-pound bags. Average freight from the plant to the farm is deducted, thus making the price an f. o. b. plant price rather than a delivered price.

Table II compares the price quotation of a leading producer<sup>3</sup> with the Bureau of Labor Statistics price quotations during the code period. The grade of fertilizer in each case is the same. The price is for 3-8-3 fertilizer, which contains 8 parts of phosphorus and 3 each of potash and nitrogen to each 100 pounds of mix. The Bureau of Labor Statistics price is for the South Atlantic region as a whole, while the National Recovery Administration price is for South Carolina only.

<sup>3</sup> This producer was an acknowledged "price leader" in this territory. The prices and terms of most competing producers followed his with few and minor variations.

TABLE II.—Price per ton of mixed fertilizer (3-8-3 mix); comparison of National Recovery Administration and Bureau of Labor Statistics data

[N. R. A. data—South Carolina; B. L. S. data—South Atlantic States]

	Bureau of Labor Statistics <sup>1</sup>	List price 200-pound bags	Agents' cash price 200-pound bags	Agents' time price 200-pound bags	List price 100-pound bags	List price white cotton bags	List price in bulk	Agents' price for 1,000 tons
1933								
December.....	16.75	26.25	22.65	23.62	27.25	-----	-----	-----
1934								
January.....	17.38	25.85	20.42	23.27	26.60	27.10	24.85	-----
February.....	17.38	25.85	20.42	23.27	26.60	27.10	24.85	-----
March.....	17.25	25.85	20.42	23.27	26.60	27.10	24.85	20.01
April.....	17.25	25.85	20.68	23.27	26.60	27.10	24.85	20.27
May.....	17.25	25.85	20.94	23.27	26.60	27.10	24.85	20.52
June.....	17.25	25.85	21.20	23.27	26.60	27.10	24.85	20.78
July.....	17.25	24.95	19.71	22.45	25.70	26.20	23.45	19.32
August.....	17.25	24.95	19.71	22.45	25.70	26.20	23.45	19.32
September.....	17.25	24.95	19.71	21.96	25.70	26.45	23.45	19.32
October.....	17.25	24.95	20.36	21.96	25.70	26.45	23.45	19.94
November.....	17.25	26.70	21.63	23.50	27.45	28.45	25.70	20.98
December.....	18.15	26.70	21.63	23.50	27.45	28.45	25.70	20.98
1935								
January.....	18.15	26.70	21.63	23.50	27.45	28.45	25.70	20.98
February.....	18.15	26.70	21.63	23.50	27.45	28.45	25.70	20.98
March.....	18.15	26.70	21.63	23.50	27.45	28.45	25.70	20.98
April.....	18.15	26.70	21.90	23.50	27.45	28.45	25.70	21.24

<sup>1</sup> Represents net cash sales in carload lots of 200-pound bags as of 15th of month.

In comparing Bureau of Labor Statistics with code prices it is necessary to remember that the former does not include freight. However, since the average freight charges during the period were uniform, price trends should be parallel. An examination of the table shows that the Bureau of Labor Statistics price represents only an approximation to the actual price behavior. This price also fails to reflect the increase of 2 percent in agents' discount which occurred in September 1934. Moreover, there is nothing in the Bureau of Labor Statistics data corresponding to the month-to-month variations occasioned by the changes in discounts which automatically occur as the various pre-season discount dates are passed.

It is important to emphasize that the Bureau of Labor Statistics data relate to a specific type of transaction only. They cannot possibly express any changes in the proportion of cash to credit sales; in the ratio between direct sales to the consumer and sales through agents; in the relative frequency with which buyers qualify for quantity discounts or the like.

Considering the general trend of prices during the period as a whole, however, a close relationship is evidenced. The difference between Bureau of Labor Statistics and cash prices, representing primarily freight charges, was similar and close to the actual freight charge both at the beginning and at the end of the code period. In this case, therefore, the failure of the Bureau of Labor Statistics price data to reflect charges in collateral terms of sale accurately may not be of major importance. In the absence of adequate similar data for other industries, it is impossible to

determine the extent to which this case is representative. However, an effort will be made below to present a quantitative appraisal of the extent to which changes in collateral terms of sale, combined with all other forms of indirect price modification, affect the validity of Bureau of Labor Statistics price statistics.

### Special Treatment of Favored Customers or Groups of Customers

Discrimination in price between customers may range from small quantity discounts to enormous price reductions. In the case of mixed fertilizer, the maximum quantity discount was only 5 percent. In other industries, however, the price to certain customers may be less than half of that to others.<sup>4</sup>

Where very wide differences exist in the treatment accorded to different customers, any price quotation is necessarily of limited meaning. The price structure for bakers' yeast is an excellent example. The price for this product is not rigid in the strict sense, since frequent minor variations occur from month to month. In terms of net change, however, the reported price fluctuates within a very narrow range. The average price during 1929 was 24¢ per pound delivered, during 1932 the price was 24.7¢, and during 1936, 22.5¢.<sup>5</sup>

In actual practice, the Bureau of Labor Statistics price quotation relates only to a small fraction of the total market. The Standard Brands Corporation is currently charging prices to different customers ranging all the way from 14 to 25 cents, depending on the quantity purchased. Independent producers are charging as low as 8 cents, or less than one-third of the maximum and slightly more than one-third of the Bureau of Labor Statistics quotation.<sup>6</sup>

Yeast is far from unique in showing such wide variations between its minimum and maximum price. During the National Recovery Administration period the list price of flashlight cells for a certain company was 10 cents. The price actually paid by toy manufacturers using very large quantities was only 2.5 cents. Wholesale jobbers paid 5 cents and retail dealers 6.5 cents at the same time. Moreover, the price of a certain battery sold to a chain store was 5.5 cents when carrying the manufacturer's label, and only 2.75 cents when carrying a private label.<sup>7</sup>

Although the Bureau of Labor Statistics does not carry a series for flashlight batteries, it does quote

<sup>4</sup> The following discussion relates to conditions existing prior to the passage of the Robinson-Patman Act. This act was designed to reduce price spreads between different customers.

<sup>5</sup> The yeast series is not included in the weighted average of the Bureau of Labor Statistics. The omission is purely on account of the minor importance of this product and does not reflect any judgment as to the relative reliability of the data.

<sup>6</sup> Federal Trade Commission in the matter of Standard Brands, Inc., and Standard Brands of California, Docket 2966.

<sup>7</sup> The American Economic Review, Vol. 26, No. 1, supplement March 1936, *Price Theories and Economic Realities*, by Willard L. Thorp, pp. 16-17.

prices for radio B cells whose price structure is closely similar.<sup>8</sup> In this case, again, the complexity of the market structure seriously detracts from the usefulness of the Bureau of Labor Statistics price quotations.

Much of the apparent rigidity of the price indexes for heavy chemicals, such as sulphuric acid, is due to the fact that the price quotation applies only to a small segment of the market. The list price is the price which the small buyer pays. The price to the large customer is set by individual bargaining. The Aluminum Co. of America appears to pursue a very similar policy. This company refuses to quote a nominal price and deals with each customer on an individual basis.

The bearing of these price discriminations between customers upon the present discussion is twofold. In the first place, where the range of prices to different buyers is very wide, the Bureau of Labor Statistics quotation may apply to only a very small segment of the market. In addition, important changes in price may take the form of changes in the relationship of the prices quoted to different classes of customers, or of changes in the proportion of customers in each class.

### Secret Rebates and Concessions

The reliability of any form of price quotation as a guide to actual price movements is, of course, largely conditioned by the faithfulness with which these quotations are actually observed in the course of business. In the case of some commodities, especially those sold on open markets, prices correspond exactly or closely with price quotations. In many lines of business, however, this is far less true. The nominal quotation may be very widely modified by large secret rebates or concessions granted either to a few powerful buyers, or even to the trade as a whole.

#### Secret Concessions to Selected Customers

It is impossible to draw any rigid line between secret concessions to favored customers and the sort of special treatment which was discussed in the preceding section. It is generally true that where very large discounts are granted to certain buyers and denied to others, such action is not widely advertised by the seller. For example, the reduced prices at which large users of sulphuric acid are able to buy are not generally publicized.

Some distinction, however, may be drawn between regularly scheduled class discounts and secret concessions. For example, the Standard Brands Co., as previously stated, maintains a regular list of quantity discounts applying to bakers' yeast. This list, however,

is not rigidly adhered to. An investigation conducted by the Federal Trade Commission, reveals the frequency with which special concessions are granted. According to the testimony of officials of the company, only about 40 percent of sales conform to schedule prices. In dealing with any customer, a branch manager is free to reduce list prices, which range up to 25 cents, to as low as 16 cents in order to retain his business. Further reductions to as low as 14 cents may be granted by the central office of the company.<sup>9</sup>

Secret concessions to mail-order houses and other large buyers are common in many industries. In the case of rubber tires, for example, it was recently shown by the Federal Trade Commission that the Goodyear Co. sold to Sears-Roebuck on the basis of a special cost-plus contract at prices far below the nominal wholesale level reported by the Bureau of Labor Statistics.

Large special discounts—some open, others strictly secret—were very common in the sale of processed foods prior to the passage of the Robinson-Patman Act. A congressional investigation of the American Retail Federation revealed the extent of these concessions to chain stores and other very large buyers. Sometimes these price reductions were in the form of ordinary quantity discounts. At other times, they took the form of advertising or promotional allowances. In either case they amounted to very substantial modifications of the list price.<sup>10</sup>

In certain lines of trade, concessions take forms which it is virtually impossible to measure quantitatively. In the sale of steel products to the railroads, for example, price reductions may take the form of freight diversion. Merchandise may be specially routed so as to allow the railroad buyer considerably higher freight revenue than strictly necessary. Purchases of scrap steel from railroads afford an additional avenue for indirect concessions.

#### General Concessions to the Trade at Large

Frequently, wide price reductions to all customers are made without any change in the nominal quotation. This may happen for a variety of reasons. For example, an individual concern wishing to reduce prices in order to secure more business may fail to reduce its nominal list price for fear that its competitors will immediately meet, or even better its offer. However, it is almost impossible to prevent knowledge of such price cutting from spreading. As a result, its competitors usually soon offer similar concessions. In a buyers' market particularly—such as existed during the depression—the actual prices for many commodities

<sup>8</sup> National Recovery Administration Division of Review, *A Study of Open Price Filing in the Electrical Manufacturing Industry*, by Willard L. Thorp and A. H. Caesar, Vol. I, pp. 495 to 574.

<sup>9</sup> Federal Trade Commission in matter of Standard Brands, Inc., and Standard Brands of California. Docket No. 2968.

<sup>10</sup> The Special Committee on the Investigation of the American Retail Federation, House of Representatives, 74th Cong., 1st sess. See for example, vol. 4, pp. 207 to 243.

may drop sharply while the nominal quotations are kept at a high level. Undeclared price wars of this character may be considered as analogous, in the economic field, to the undeclared wars which have recently become so popular in international affairs. Their advantages are not dissimilar; they both retain the forms of tranquility and thus facilitate a return to normal practices as soon as conditions permit. It is naturally simpler and easier to withdraw or reduce special concessions than to raise a list price.

The following examples may serve to illustrate the use of this technique:

1. *The fertilizer industry.*—Some clue to the extent to which rebates and concessions affect nominal fertilizer prices may be obtained from a report of the Federal Trade Commission.<sup>11</sup> According to this report, there was widespread selling of fertilizer at prices far below list during the years 1921 and 1922. The Bureau of Labor Statistics index showed no change in price between January and December 1921. It showed a substantial cut between December 1921 and January 1922, and perfectly stable price quotations through 1922. According to the Trade Commission, however: "In 1921 and 1922 price lists were published as usual, but were so high that the companies were unable to maintain such prices for any length of time." The Commission reproduced many letters taken from files of fertilizer manufacturers which reveal the extent to which rebating was practiced. During this period, for example, Swift & Co. were selling to dealers at discounts of 33.3 percent plus 5 percent off schedule, and, in addition, granting a direct rebate of \$2 per ton. The American Chemical Co. instructed its North Carolina sales managers to go as far as 33.3 percent below list wherever necessary to meet competition. On April 10, 1922, at a time when the Bureau of Labor Statistics index was perfectly stable, a district manager of the American Agricultural Chemical Co. wrote to its vice president: "I think every concern operating out of Atlanta, with no exception, is making almost any price it sees fit in order to get some business \* \* \*. All managers and division managers practically admit that there is no regular price."

Although similar documentary evidence is not available for periods subsequent to 1921 and 1922, persons close to the trade state that similar practices have recurred under similar conditions.

(2) *Salt industry.*—A parallel situation occurred in the salt industry during the latter part of 1935. Table III shows the course of nominal prices for table salt as reported by the Bureau of Labor Statistics. These price quotations show no decline from March to September 1935. Yet, according to a National Recovery

Administration study, a price war started early in 1935 and discounts of as much as 30 percent were being granted by August 1935. According to this report:

Particularly during time of depression, in efforts to bolster declining sales volume, many members of the industry offered secret prices, discounts, rebates, and other concessions \* \* \*.

\* \* \* \* \*

In the latter months of the code period, the practice of granting secret rebates and other secret concessions from filed prices began to develop in the industry. Filed prices were maintained at uniform levels within the various marketing areas, but actual price uniformity was disappearing. The difficulty of discovering and proving secret price concessions, plus rather apathetic support from the National Recovery Administration along compliance lines, contributed to the growth of secret pricing.

\* \* \* \* \*

Following May 27, 1935, deviations from published prices became more and more troublesome. By August the secret prices evidently became sufficiently serious to warrant retaliation by the price leaders in the industry. Since that time, there has developed one of the worst price wars experienced in recent years by this industry. Published prices remain practically the same as they were during the code period, but discounts and rebates ranging from 20 to 30 percent are being granted to various types of buyers.<sup>12</sup>

Despite the existence of this price war, the nominal price quotations as reported by the Bureau of Labor Statistics showed no change at all until October 1935. The October quotations were 26 cents, or 10 percent, below the September prices; but even this reduction in the list price did not approximate the extent of the discounts which were being granted.

Evidence relating to practices of this character could doubtless be multiplied. Secret rebates and discounts may well constitute the most important single source of error detracting from the accuracy of the Bureau of Labor Statistics price data.

In industries whose National Recovery Administration codes contained direct or indirect provisions for price control, the problem of departures from list prices during 1933-35 may have been accentuated. On the one hand, code provisions tended to increase rigidity and the official character of code prices provided a basis for their enforcement. On the other hand, to the extent that a code attempted to maintain prices out of line with those which would have existed in the absence of the code, the incentive to give secret rebates or otherwise to avoid holding to the list price was enhanced. The net effect cannot be assumed to have been greater departure from list prices or greater adherence to them. In specific industries, prices for the National Recovery Administration years must be used with caution, and the evidence of National Recovery Administration studies recognized as applying to the special conditions of these years.

<sup>11</sup> Fertilizer Industry. Letter from the Acting Chairman of the Federal Trade Commission transmitting in response to a Senate Resolution of June 17, 1922, a report on certain phases of the fertilizer industry. S. Doc. 347, 67th Cong., 1st sess.

<sup>12</sup> National Recovery Administration, Division of Review—*Manufacturer's Control of Distribution: A Study of Trade Practice Provisions in Selected N. R. A. Codes*, by Irwin S. Moise and George B. Haddock; Work Materials No. 62, March 1936, pp. 136, 147.

TABLE III.—*The price of salt as reported—1929 to 1936*

[American table salt—Medium grade—Wholesale price per barrel of 280 pounds delivered in Chicago]

	Relative (1926=100)
1933:	
January.....	99.6
February.....	99.6
March.....	99.6
April.....	99.6
May.....	99.6
June. (New quantity discounts 2 to 10 percent.)..	99.6
July.....	99.6
August.....	108.8
September.....	111.2
October.....	108.9
November.....	108.9
December.....	108.9
1934:	
January.....	108.9
February.....	108.9
March.....	108.9
April.....	108.9
May.....	108.9
June.....	108.9
July.....	108.9
August.....	108.9
September. (Increase in quantity discounts.)....	108.9
October.....	108.9
November.....	115.7
December. (Price war begins.).....	115.7
1935:	
January.....	117.1
February.....	117.1
March.....	117.1
April.....	117.6
May.....	118.5
June.....	118.5
July.....	118.5
August.....	118.5
September. (20- to 30-percent discounts from list.)..	118.5
October.....	106.6
November.....	106.6
December.....	106.6

### Geographic Price Relations

The precise geographic point to which a quoted price applies is, of course, of primary importance in defining its meaning. A delivered price and a plant price are two distinct entities. Most of the prices reported by the Bureau of Labor Statistics fall into three categories:

1. Plant prices, with the location of the plant not specified.
2. Prices at specified basing points.
3. Delivered prices at some important market. (In the case of certain commodities—particularly food-stuffs—quotations for a number of principal markets are published.)

When the price trends for different commodities are compared, due allowance must be made for these differences in the kind of quotation. Delivered prices

include the element of freight, which is, of course, quite inflexible. Consequently the amplitude of movement of delivered prices, measured in terms of percentage, is narrower than would be the movement of plant prices for the same commodity. For bulky, inexpensive commodities, the difference may be very material. For example, the average plant value per ton of lime declined 20 percent between 1929 and 1934. The average delivered price declined only 12 percent during the same period.<sup>13</sup>

Moreover, delivered prices at a specific market may not accurately reflect the general trend throughout the nation. For example, chart I presents a comparison between the price trend for crushed stone produced in New York State and New Jersey and the price trend for all crushed stone produced in the United States, based upon data reported by the Bureau of Mines. In addition, the chart shows the Bureau of Labor Statistics wholesale price index for crushed stone, which is quoted on the basis of delivery at New York. The Bureau of Labor Statistics index for the period of 1920-29 shows a trend closely parallel to that of the Bureau of Mines index based upon New York and New Jersey stone. The national index, however, shows a distinctly different trend. Both of the former two indexes show virtually no net change in price from 1920 to 1929. In contrast, the average price throughout the nation declined more than 20 percent during the same period.

### Definition of Commodity

A major problem encountered in almost any form of price reporting is the formulation of a precise definition of the commodity to which the price series applies. A large proportion of the Bureau of Labor Statistics price indexes relate to perfectly standard commodities, such as No. 2 Red Winter Wheat, electrolytic copper, or 66° Baumé sulphuric acid. In many other cases the degree of standardization is sufficient for all practical purposes, as in the case of portland cement.

In the case of nonstandard goods such as apparel or machinery, however, the problem of definition assumes major proportions. The validity of the index in cases of this sort is conditioned by two distinct considerations.

1. Is the definition sufficiently precise to insure that the trend of the index over a period of years reflects only changes in price and not changes in the nature of the commodity?
2. Is the specific commodity selected sufficiently representative to portray adequately the price trend for all commodities in the same class?

<sup>13</sup> National Recovery Administration Division of Review, *Operation of the Basing Point System in the Lime Industry Code*, by T. K. Uhlahl. (Based on data shown on p. 71.)

### Precision of the Definition

The first problem—precision of the definition—is of basic importance in the case of such items as agricultural machinery, automobiles, and apparel. In the first two cases it is virtually impossible to secure a price series applying to exactly the same product from year to year. No two successive automobile models are alike. The same is true, though possibly to a lesser extent, of agricultural machinery. In fact, the very small number of machinery items included in the Bureau of Labor Statistics weighted index is due primarily to the nonstandard character of most types of machinery.

In the case of apparel, the Bureau of Labor Statistics has attempted to formulate definitions that would minimize the effect of style variations. Thus, 21 different series are published for shoes, including, for example, little boy's tan calf shoes, men's side leather oxfords, and women's patent leather pumps. Similarly, in the case of men's shirts, the character of the material is carefully specified. Moreover, due to the impossibility of adequately allowing for style changes in women's suits and dresses these products have been deliberately omitted.

Despite all these precautions, it is still probable that the prices reported to the Bureau of Labor Statistics fail adequately to account for changes in the style and workmanship of apparel. In the case of men's shirts, for example, defining the material alone is not an adequate criterion. Changes in style and workmanship are of at least equal importance. There has been a progressive improvement in the fabrication of men's shirts over a considerable number of years. This improvement is not, and cannot be, allowed for in the construction of the index.

### Representative Character of the Indexes

In the attempt to restrict reporting to relatively standard commodities which can be precisely defined, there is danger of impairing the representative character of the index. For example, again considering men's shirts, the proportion of all shirts manufactured which are produced in accordance with Bureau of Labor Statistics specifications may be small. The price trend for shirts as a whole may differ materially from that shown for the Bureau of Labor Statistics standard.

To take another instance, price data are reported for an 8-ounce package of a corn cereal breakfast food. This series represents a single product of a single company. It is possible that the products of other companies, or even other products of the same company, may show a price trend differing substantially from that quoted for this specific item.

This problem is complicated by the presence of trademarks and private brands. In very many lines, articles

bearing private brands are sold at a large discount from the price of the identical product carrying the manufacturer's nationally advertised label. The number and importance of private brands has increased very materially in recent years. Due to the stimulus of recent legislation, it is likely to increase further. Consequently, even though the price of a manufacturer's brand remains stable, the average price for all similar articles, regardless of brand, may be declining materially.

It is impossible on the basis of available data to appraise the importance of either of the factors discussed in this section. It is probably a fair statement, however, that some of the Bureau of Labor Statistics indexes fail to reflect fully changes in the quality of the product and that others apply to a restricted and possibly not sufficiently representative segment of the market.

### Comparison of Price Quotations With Computed Net Values

The existence of all these indirect forms of price variation makes it essential to estimate quantitatively the extent to which they affect the validity of the Bureau of Labor Statistics price series. Statistics compiled by the Census of Manufactures and the Bureau of Mines were employed in the attempt to arrive at such a measure.

These two sources publish figures revealing both aggregate annual physical volume and dollar value of production for a considerable number of commodities. (Some of these data are available for each year, while some are compiled only for alternate years.) From these statistics, an average net value at plant or mine may be computed and compared with the corresponding Bureau of Labor Statistics price series where they cover the same commodities or groups of commodities.

Net value and price are not, of course, synonymous. Price relates to a specific, single commodity while net value represents an annual average for all products included within the classification. However, if the classification is sufficiently narrow, net value at plant or mine will not differ materially from net wholesale prices after all discounts and concessions have been deducted. In such cases, it may be reasonably expected that the movements of net value and price will be closely parallel. If the net value for any commodity be expressed in terms of an index, the movement of that index should vary but slightly from that of the Bureau of Labor Statistics index for the same product.

There are, of course, obvious difficulties in the way of comparisons of this character. The product classifications used by the Bureau of the Census and the Bureau of Mines rarely conform exactly with those used by the Bureau of Labor Statistics. However, it has been possible to select a considerable number of items for

which the classification is identical, or nearly so. For many more, despite differences in classification, it still seems possible to draw a comparison.

A second difficulty is inherent in the nature of the census figures. The Census Bureau, in issuing its blanks, does not instruct manufacturers to base "value of product" upon actual net returns from sales. Instead, value is to be computed by multiplying the number of units produced by the average price during the period. Undoubtedly, the basis of computation actually used by individual manufacturers varies considerably. Special difficulties arise when "sales" take the form of inter-branch transfers, as when a factory transfers merchandise to a regional sales branch. In such cases, "value" will be based upon the price recorded in the company's books, and may well range all the way from actual cost of manufacture to the nominal wholesale price level prevailing at the time. Nevertheless, in the majority of returns, it is probable that the reported "value" is a close approximation of the net income from sales. Moreover, census data have the advantage of covering an entire industry rather than a small selected sample. "Net value" as computed from census reports must be recognized as constituting a good approximation rather than an absolutely accurate figure. Whereas differences between the Bureau of Labor Statistics price and the census net value at any one time may not be significant, an examination of their relative behavior over a period of years should afford a valuable clue to the reliability of the Bureau of Labor Statistics data.

Comparisons for sample items have been presented in chart I. Indexes for additional commodities are compared in table IV. Except where noted, the items mentioned in the following discussion are shown in table IV. Indexes have been based upon the 1929 average as 100. This base was selected in order to show more clearly the relative extent to which the Bureau of Labor Statistics price and the computed net value declined during the depression.

In some cases, the Bureau of Labor Statistics price and the computed value show widely different trends. In others, significant but narrower differences exist. In the rest, the movement of the two indexes is virtually parallel. These three groups will be considered separately.

#### Cases of Wide Disparity

Very wide differences between the trend of the Bureau of Labor Statistics index and computed net value occur in the case of two standard chemical products—66° Baumé sulphuric acid (chart I) and bone black.

The Bureau of Labor Statistics indexes for both of these products are extremely rigid. In the case of

sulphuric acid no change in price was reported from 1928 through 1936. The price of bone black has remained perfectly stable from 1923 through 1936. In each of these two cases the computed net value shows a totally different picture. The net value of 66° Baumé sulphuric acid dropped 20 per cent from 1929 to 1933 and that for bone black showed an approximately equal decline.

The explanation of this disparity seems clear. The Bureau of Labor Statistics prices are obtained, not from direct reports, but from trade paper quotations. These quotations may apply to very small purchases, but large quantities are sold on the basis of individual negotiations. In most cases sales are on the basis of annual contracts and the nominal quotation is significant only as the point from which bargaining starts.

A somewhat similar picture is presented in the case of petroleum asphalt. The Bureau of Labor Statistics index for this product is also rigid. It is also based upon a trade paper quotation. Although the quotation itself dropped about 16 percent during the depression the actual plant net value dropped approximately twice as far—32 percent. Moreover, the decline in net value had persisted for 4 years (from 1927 to 1931), before the nominal quotation reflected what was happening.

There is a wide discrepancy between the Bureau of Labor Statistics quotation for aluminum ingots and the price trend as computed from census data (chart I). To some extent, this may be explained by the fact that the Bureau of Labor Statistics data are for virgin aluminum, 99 percent plus pure, while census figures are for both primary and secondary metal, whose purity may fall as low as 98 percent. This difference, however, is not of major significance. The Bureau of Labor Statistics index is based upon quotations in the *American Metal Market*. The price of secondary aluminum is also reported by this publication. It is noteworthy that the census figures, which include both primary and secondary metal, are even lower than those for secondary aluminum alone. Moreover, the Aluminum Co. of America proclaims the policy of maintaining no fixed prices, but of dealing with each customer independently. It may be inferred, then, that the Bureau of Labor Statistics quotation for the virgin metal is purely nominal.

A very different market condition exists in the case of men's dress shirts (chart I). Here again the Bureau of Labor Statistics index is extremely rigid. The Bureau of Labor Statistics quotation shows only a nominal drop during the depression, while the average net value as computed from census data declined more than 36 percent from 1929 to 1933.

In this case the product classification is not identical. The Bureau of Labor Statistics data are for a shirt

made from a carefully specified material, while the census figures relate to all shirts.

The significant factor in this case is the peculiar structure of the market. Men's shirts, like many other lines of apparel, are traditionally sold in certain fixed price classes. Thus, in the retail market, there are \$2.95 shirts, \$2.50 shirts, \$1.95 shirts, \$1.69 shirts, and so on down. Corresponding to these retail prices are wholesale prices per dozen which show similar variations. Shirts are not sold at intermediate levels. The wholesale prices will be either—say, \$18 or \$15 per dozen, but not \$16.50 per dozen. The product is manufactured to a price. During the depression a shirt of quality and workmanship which originally sold for \$1.95 could be purchased by the consumer for \$1.69 or less. Quotations, however, apparently remained rigid. Changes in price took the form of changes in workmanship and style, rather than in the traditionally established wholesale price range.

On the other hand, the census index undoubtedly exaggerates the extent of the price drop. During the depression there was a marked shift of consumers from the better to cheaper garments. It may be assumed safely that the average shirt purchased during 1932 was not comparable in quality with the average sold during 1929. The true course of the market probably lay somewhere between the Bureau of Labor Statistics and the census index.

Wide discrepancies also appear in the case of certain less rigid indexes. Hydrated lime and portland cement are examples of this character. Both of these indexes, while not flexible, display a moderate response to market changes. However, additional factors, such as changes in terms or special concessions, apparently exist which the Bureau of Labor Statistics data fail to reflect. The drop in plant net value during the depression as computed from Bureau of Mines data, was considerably wider than that shown by the Bureau of Labor Statistics for quoted prices. From 1929 to 1932 the Bureau of Labor Statistics index for cement declined approximately 15 percent, while that based on Bureau of Mines figures fell 30 percent. In the case of hydrated lime, the Bureau of Labor Statistics decline was 14 percent as compared to 24 percent for the Bureau of Mines data.

Even flexible prices do not appear to be exempt from this type of variation. The Bureau of Labor Statistics index shows the price of yellow pine lumber as very flexible, yet it registered a decline of only 20 percent from 1929 to 1932, whereas census data indicated a drop of 32 percent. In this case, of course, the product classification is not strictly comparable. Nevertheless, the general parallelism in the course of prices between 1919 and 1929 makes it seem probable that the comparison is reasonably valid. Moreover, there is ample

evidence that lumber producers often grant special prices not in accord with listed quotations in order to dispose of their product.

In each of these cases, therefore, the Bureau of Labor Statistics index indicated an apparent rigidity greater than the true price structure warranted, and failed to reflect adequately the extent of the price decline during the depression.

#### Cases of Moderate Disparity

Narrower, but appreciable differences between Bureau of Labor Statistics price quotations and computed net values may be noted in a number of the cases illustrated. Thus, for polished plate glass, the Bureau of Labor Statistics publishes two series, while only one is available in the series based on the Census of Manufactures. The table shows a close general correspondence between Bureau of Labor Statistics series no. 2 and census figures. During the depression, however, the census shows a more rapid decline in prices from 1929 to 1931, than does the Bureau of Labor Statistics. By 1935 the indexes were again practically identical. Presumably, again, the Bureau of Labor Statistics quotation failed to reflect changes in terms and special concessions.

Census figures for book paper and wood screws also show a somewhat wider decline than do Bureau of Labor Statistics. In neither of these cases is there strict product comparability and, therefore, only limited reliance may be placed upon the comparison. However, from 1921 to 1931, the Bureau of Labor Statistics and Census prices for book paper run closely similar courses.

An interesting comparison is available in the case of sand-lime brick (chart I). The Bureau of Labor Statistics index for this commodity is quite rigid. Nevertheless, the comparison shows that it fully reflected the drop in net value which took place between 1929 and 1932. The decline in the Bureau of Labor Statistics index, however, took place a year later than did that in the Bureau of Mines figures. It seems likely that the price decline first took the form of indirect or secret concessions. When these become established, the quoted prices followed the full extent of the true decline.

#### Cases of Close Correspondence

In a very considerable number of cases, Bureau of Labor Statistics price series and net values computed from Census and Mines data show very close correspondence. Cases of this sort occur both for rigid and for flexible prices. For example, steel rails, concrete reinforcing bars, structural steel (chart I), and pig iron all show a close parallelism between the Bureau of Labor Statistics and Census prices. Other rigid, "adminis-



tered" prices such as salt cake (chart I) exhibit similar characteristics. The same is true of complex manufactured products such as farm machinery. The close correlation shown by the two series for hay loaders, grain binders, and mowers is very striking. The same may be said of such diverse commodities as mixed fertilizer, fire brick, washing machines, and window glass.

Highly flexible prices such as those for denims (chart I), canned peaches, and dried peaches, show an almost perfect correspondence between Bureau of Labor Statistics and Census figures.

In certain cases, although quantitative data are not available, there is evidence that the Bureau of Labor Statistics price quotation is entirely accurate. This is true, for example, of iron ore, the quoted price for which is known to be rigidly adhered to.

TABLE IV.—Comparison of price indexes, Bureau of Labor Statistics and Census of Manufactures or Bureau of Mines, 1919-36

[1929=100]

Year	Bone black		Asphalt		Hydrated lime		Portland cement	
	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Bureau of Mines	Bureau of Labor Statistics	Bureau of Mines	Bureau of Labor Statistics	Bureau of Mines
1919	100.0	108.9					110.3	115.6
1920							127.6	136.5
1921	116.9	164.3			124.0	113.6	129.6	127.7
1922					111.5	108.3	112.7	119.0
1923	100.0	105.9			121.8	121.1	117.5	128.1
1924					119.7	121.7	115.1	122.3
1925	100.0	86.2	104.5	121.8	114.8	118.8	111.8	119.7
1926			100.0	120.1	108.1	114.7	108.9	115.6
1927	100.0	92.6	100.0	125.2	105.3	110.8	105.3	109.5
1928			100.0	114.7	103.0	101.9	104.5	106.1
1929	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1930			100.0	95.3	98.7	94.5	100.3	97.3
1931	100.0	84.5	100.0	76.6	92.9	83.9	87.0	74.3
1932			83.3	68.4	85.5	76.5	84.7	68.3
1933	100.0	78.2	87.5	87.0	88.4	81.2	94.4	89.9
1934			100.0	97.1	96.2	92.6	102.2	104.2
1935	100.0	100.0	100.0	88.4	95.6	95.9	103.9	102.1
1936			100.0	89.5	92.8	96.8	104.1	102.1

Year	Lumber—yellow pine		Polished plate glass			Book paper		Wood screws	
	Bureau of Labor Statistics	Census	Bureau of Labor Statistics <sup>1</sup>	Bureau of Labor Statistics <sup>2</sup>	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census
1919	110.2	111.9	132.1	151.3	173.9				
1920									
1921	78.2	75.7	179.0	183.5	196.4	134.0	138.2		
1922	88.4	92.2							
1923	109.7	116.2	149.3	181.7	(*)	121.7	124.7		
1924	94.6	103.5							
1925	97.2	103.1	119.2	143.6	144.5	109.0	117.5		
1926	102.0	103.4							
1927	93.3	92.6	92.2	102.6	111.1	108.7	107.8		
1928	89.5	95.9							
1929	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1930	88.9	82.1							
1931	79.0	66.2	94.3	94.8	87.8	88.5	88.6	88.5	90.2
1932									
1933	80.2	69.8	95.7	95.2	(*)	79.1	68.6	81.6	74.6
1934	101.9	84.3							
1935	95.1	71.1	70.0	67.6	69.9	92.2	78.2	75.9	67.2
1936									

\* No data available.

<sup>1</sup> Polished glazing area, 3-5 square feet per square foot.

<sup>2</sup> Polished glazing area, 5-10 square feet per square foot.

TABLE IV.—Comparison of price indexes, Bureau of Labor Statistics and Census of Manufactures or Bureau of Mines, 1919-36—Continued

Year	Steel rails		Concrete reinforcing bars		Fig iron (Aia)		Hay loader	
	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census
1919	114.6	104.0	123.3	140.3				
1920	125.2		142.6					
1921	106.2	110.0	99.5	116.5			93.5	89.4
1922	94.6		85.6				74.8	(*)
1923	100.0	97.6	113.4	129.5			91.4	96.6
1924	100.0		110.1				107.0	105.2
1925	100.0	99.4	101.5	113.4			101.9	98.8
1926	100.0		98.5		139.9	124.8	101.9	103.1
1927	100.0	96.2	92.6	103.6	115.3	111.6	100.8	100.6
1928	100.0		94.5		105.7	103.2	100.8	102.2
1929	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1930	100.0		89.1		93.4	83.7	97.7	101.0
1931	100.0	96.9	81.2	85.7	81.0	76.5	96.8	103.1
1932	98.6		77.2		73.0	68.0	94.3	(*)
1933	91.5	90.3	83.2	79.0	81.5	71.2	94.3	95.5
1934	84.6		94.1		93.6	85.3		
1935	84.6	86.4	96.5	97.5	96.6	90.6		
1936					103.2	92.7		

Year	Grain binders		Mower		Mixed fertilizer		Fire brick	
	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census
1919								
1920								
1921								
1922	84.5	78.0						
1923	95.3	83.7	95.6	90.4				
1924	107.0	101.8	100.0	104.7				
1925	100.8	95.7	100.8	96.4				
1926	100.8	93.6	100.8	95.6			96.5	103.0
1927	100.8	93.0	100.8	97.3	95.3	89.5	98.3	102.6
1928	100.8	96.5	100.8	95.6			100.0	101.8
1929	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1930	97.8	103.0	97.1	98.5			100.0	104.4
1931	97.0	97.4	97.1	98.1	84.5	84.5	94.4	97.8
1932	94.7	(*)	95.6	(*)			84.1	91.0
1933	94.7	(*)	99.9	96.2	66.3	66.7	92.9	91.2
1934	98.8	(*)					104.6	102.9
1935	100.8	97.7			72.6	78.9	104.6	105.0
1936	100.8	104.1						

Year	Washing machines		Window glass		Canned peaches		Dried peaches	
	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census
1919								
1920								
1921								
1922			156.0	182.0	172.4			
1923			140.7	164.1	143.0			
1924			101.7	105.6	(*)			
1925			78.7	90.5	102.5			
1926								
1927	137.2	117.6	84.1	87.1	86.4	85.2	78.5	83.2
1928						83.1	84.3	
1929	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1930						90.6	82.7	
1931	80.7	77.5	63.3	60.5	59.8	73.4	64.4	59.5
1932						63.9	46.5	
1933	53.5	58.9	71.2	67.3	65.0	60.5	57.1	47.5
1934						74.0	71.8	
1935			68.8	64.5	65.6	72.2	64.9	71.8
1936						70.5	72.1	

\* No data available.

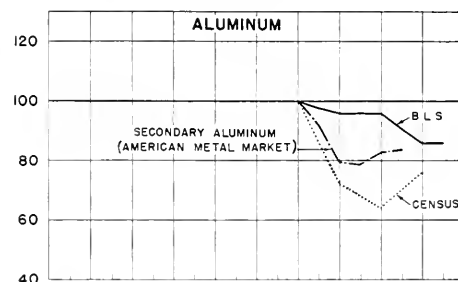
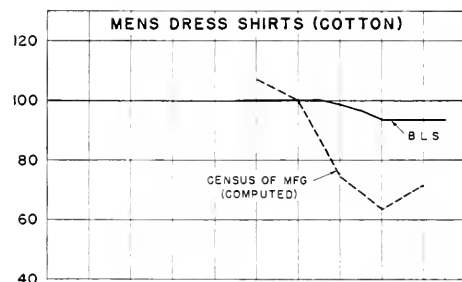
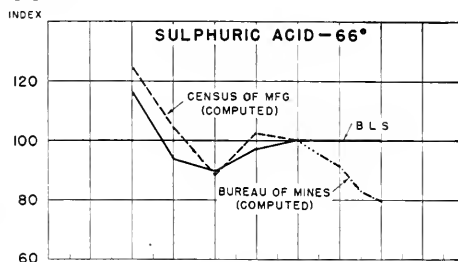
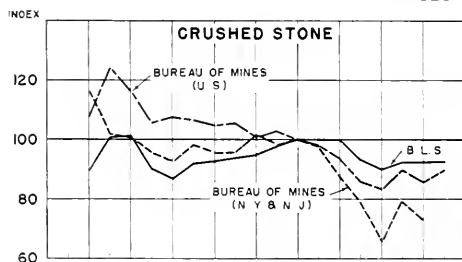
<sup>1</sup> Single—"A."

<sup>2</sup> Single—"B."

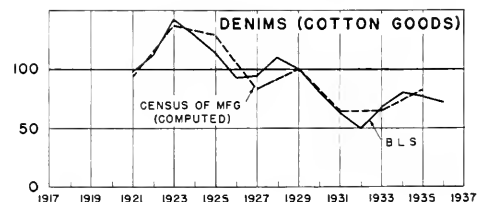
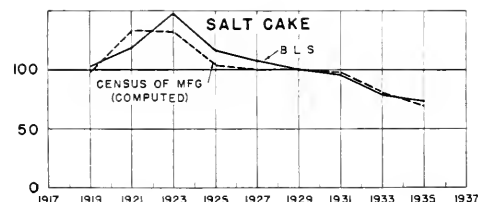
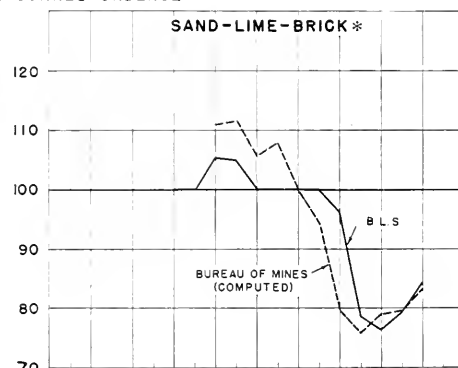
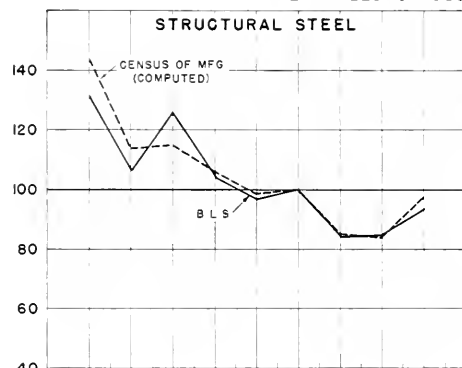
## COMPARISON OF PRICE INDEXES

B L S COMPARED WITH CENSUS OF MANUFACTURES OR BUREAU OF MINES  
(1929 = 100)

## EXAMPLES OF DISPARITY



## EXAMPLES OF CLOSE CORRESPONDENCE



\* CORRESPONDENCE WITH TIME LAG

## Conclusion

On the basis of the evidence presented, it may be concluded that Bureau of Labor Statistics data fail to present an accurate picture of price movements in the case of certain commodities. This seems particularly true of heavy chemicals, such as sulphuric acid, and of other commodities such as petroleum asphalt and aluminum for which the source of information is trade paper quotations. Even where price series are based upon reports by manufacturers, the quotations may be largely nominal during periods of severe economic stress, as in the case of lime and cement. For products such as men's shirts, which are particularly hard to define precisely, the Bureau of Labor Statistics series may fall far short of accuracy.

On the other hand, it is significant that Bureau of Labor Statistics data do not appear to exaggerate the rigidity of the price structures of important commodities and commodity groups such as, for instance, steel rails and agricultural machinery. Although series based upon direct reporting are probably, on the whole, more accurate than some of those derived from trade journals, there seems no reason for generally

rejecting the latter with the possible exception of the chemical group.<sup>14</sup> Trade paper quotations for such items as iron ore and steel rails have been shown to be reliable. For commodities sold on open markets, prices listed in trade publications may be presumed to be perfectly accurate.

These observations make the use of caution in dealing with individual price series imperative. However, they do not preclude the use of Bureau of Labor Statistics wholesale price data as statistical bases for broad economic investigations. In analyses of price rigidity and amplitude of price movement, it becomes necessary to place emphasis upon broad and consistent relationships and to avoid relying upon small differences in absolute figures. Yet, after all due allowance is made for the factors demanding caution, very marked and significant differences still remain between the behavior of rigid and flexible prices. For the statement and interpretation of such different types of price behavior, Bureau of Labor Statistics series can be regarded as furnishing an acceptable basis.

<sup>14</sup> The Bureau of Labor Statistics is now in the process of revising its chemical series.

## APPENDIX 2<sup>1</sup>.—WHOLESALE PRICE DATA

In the following tables, the commodities which go to make up the Bureau of Labor Statistics index of wholesale prices are classified according to various characteristics; are grouped on the basis of frequency and magnitude of price change; and are presented, group by group, in the form of indexes, running on an annual basis from 1913 to 1937.

In table I various characteristics and classifications of the 784 individual items are listed. In the first column the code numbers are indicated, by which the prices are referred to in various Bureau of Labor Statistics publications. In a number of cases where several quotations were obtained by the Bureau of Labor Statistics for the same or very similar commodities, it was found desirable to combine such quotations into one index in order to avoid weighting such items too heavily in the unweighted averages used in computing various indexes. Where this was done the new composite price is denoted by the lowest code number among the prices entering into the composite with the letter c affixed, thus: 2c, 6c. The individual items which were combined to make up such composites may be identified by referring to the notes after column 16.

A brief description of each commodity price is given in column 2. More complete specifications of the commodities are available in the mimeographed pamphlet *Wholesale Prices—Specifications of Commodities Entering Into the Composite Weighted Index*, Bureau of Labor Statistics, Division of Wholesale Prices, September 1935.

In column 3 is given the period for which fairly complete data are available. In some cases scattered data are available outside the period given, but are too scanty for ready use in further analysis. On the other hand, the absence of a month or two from the series has usually not been considered sufficient to warrant rejecting the data; the missing month has usually been supplied by interpolation.

In columns 4, 5, and 6, the commodities priced are classified according to the degree of fabrication to which they have been subjected. In column 4 the classification into raw materials and manufactured goods follows that published by the National Bureau of Economic Research in appendix II of *Economic Tendencies in the United States* by Frederick C. Mills. Not all the prices are so classified by Mills, and in a few cases the precise quotation to which the classification made in *Economic Tendencies* refers is not quite certain. Column 5 gives the classification into raw, semifinished, and finished goods according to the clas-

sification given by the Bureau of Labor Statistics, Division of Wholesale Prices, in *Wholesale Prices* for December 1937. Column 6 gives a somewhat more detailed classification prepared by the staff of the National Resources Committee. Commodities which pass through two or more stages of manufacture and so may at some time become a semifinished good are classified into raw, semifinished, and finished, designated R, S, and F, respectively. There are, however, some commodities which undergo no processing at all and are consumed substantially in the raw state. Such commodities are thus at the same time raw materials and finished goods, and are designated RF. There are also some commodities which undergo only one stage of manufacture and so never pass through the stage of being semifinished goods, at least in the open market. The raw material stage of such goods is designated RS, and the finished state SF.

Columns 7, 8, and 9 classify the items according to their durability. In general the criterion is durability under continuous use—i. e., normally rendering successive services—rather than mere absence of perishability. In column 7 the classification is that given to the corresponding Census industries (see column 16) in table 3 of *Employment and Pay Rolls* of the Bureau of Labor Statistics (e. g., the issue for October 1937). On this basis, the classification is somewhat indirect and occasionally yields anomalous results, as when matches are classed as durable. In column 8 the classification is taken from appendix I of *Economic Tendencies* in which various commodities are classified for use in production indexes rather than price indexes and the relation to the price indexes is somewhat indirect. In column 9 the classification by the staff of the National Resources Committee is given.

Column 10 classifies the items according to use, i. e., goods entering into capital equipment, producer's goods entering human consumption, and consumer goods. In column 11 the items are classified as food, clothing, and "other." Columns 12 and 13 classify the items as to source—in column 12 according to whether the source of the item is farm or nonfarm, and in column 13 according to whether the source is crop, animal, forest, or mineral. These classifications are taken from the National Bureau of Economic Research, except for the items classified as clothing and "other" which are by the staff of the National Resources Committee.

In column 14 the commodities are classified by the staff of the National Resources Committee according to source of activity, i. e., according to the industry that contributed the greatest value for that stage of

<sup>1</sup> Appendix 2 was prepared by William S. Vickrey.

activity. Four classifications are given, i. e., agricultural, forestry and fishing, mining, and manufacturing. For the manufactured goods the classification was made according to value added, i. e., when valued added was 30 percent or greater the commodity was classed in manufacturing, otherwise it was classified in one of the other groups.

In column 15 commodities are classified according to the degree to which the product of a manufacturer is subject to the direct competition of similar products. Where the same commodity with substantially identical specifications is obtainable from several producers, the article is classified as a standard commodity, designated S; where there are differences between the product of one producer and that of another producing substantially the same commodity, or where the producer by advertising, packaging, use of trade-marks, or other means, has succeeded in creating the illusion in the mind of the public that such differences exist, the commodity is classified as differentiated, designated D; and where differentiation of the product is carried to the extent that the products of different producers are no longer directly comparable as to price without taking into consideration possible differences in the tastes of the consumer, the commodity is classed as unique, designated U.

In column 16 the Census classification number of the industry in which the commodity is produced is given. In the case of raw materials, the source is given, i. e., agriculture, mining, or import. An item is classed as an import if the preponderance of the supply is imported regardless of whether a considerable proportion of the supply may be produced domestically. Complete descriptions of the industries to which the industry code numbers refer are given in *Industry Classifications for the Census of Manufactures, 1935 and 1937*, Bureau of Census. The 1935 numbers were used for all industries but textiles, for which the 1937 numbers were used.

In column 17 is given the number of changes in price occurring during the period from January 1926 to December 1933, there being a total of 96 monthly quotations and therefore a possible maximum of 95 changes. In the case of composites, the total number of changes in all of the prices entering into the composite was divided by the number of components and the result evened off to the nearest integer. Prices were then classified into 10 frequency groups according to the frequency of change, the group intervals being adjusted so that the prices are distributed as evenly as possible among the ten groups. Prices changing least frequently were put in group I and those changing most frequently in group X. Group X was then further subdivided into Xa and Xb by putting into group Xb those prices which had shown a change every month, or a total of 95 changes, leaving in group Xa those

prices having shown 93 or 94 changes. These group numbers are listed in column 18.

In column 19 is given an index of depression sensitivity for each of the 617 items included in the frequency groups. The index is calculated by subtracting the 1932 price index from the arithmetic average of the 1929 and 1937 price indexes (all prices expressed as a percent relative of the 1929 price).<sup>2</sup> This measure estimates in part the influence of the nondepression factors such as were at work between 1926 and 1929. Such a measure is superior to the drop in price from 1929-32 or a rise in price from 1932-37, because any change in the price not attributable to the depression is partly averaged out. On this basis, prices are grouped into 10 groups from the least to the most sensitive. The depression sensitivity group numbers are given in column 20 for each of the 617 items.

In columns 21, 22, 23 and 24 are shown the price indexes for each of the items used in the sensitivity groups for the years 1926, 1929, 1932, and 1937, in each case the base being 1929=100.

In table II the prices are listed by frequency groups. This table also shows the range of frequency corresponding to each group and gives the depression sensitivity group number for each price.

In table III the prices are listed according to depression sensitivity groups. The range of sensitivity for each group is given, and within each group the prices are given in order of increasing sensitivity.

Table IV gives annual indexes computed from these groupings. The first 10 lines are frequency group indexes, which are simple unweighted geometric averages of the items in each frequency group, shifted from a 1926=100 to a 1926-29=100 base. Similar indexes are also given for the 10 sensitivity groups. The frequency slope is the regression coefficient obtained when the frequency group indexes for a given year are related to the group number. To retain more nearly the normal distribution of the data and to avoid the influence of the general price level upon this coefficient, the calculation was carried out in terms of logarithms, the result being expressed in percent change in price per group. The Bureau of Labor Statistics *Index of Wholesale Prices* and the Federal Reserve Board *Index of Industrial Production* shifted to a 1926-29=100 base are also given for comparison.

Table IV-A gives data for the period 1913 to 1926 similar to those in table IV except that 11 items which showed extreme and disproportionate rises in price during the war period when supplies of these commodities from Germany were cut off have been eliminated. These items are Nos. 598, 609, 611, (dyestuffs); 620, 659, 660, 661, 662, (potash salts); 632

(Continued on Page 206)

<sup>2</sup> In those cases where the 1932 price is greater than the average of 1929 and 1937 prices, the index is negative. In such cases, the 1932 price is greater than the 1929 price or the 1937 price.

TABLE I.—Tentative price classifications

B. L. S. code No.	Name of commodity	Price data available	Fabrication		Durability		Use, N. B. E. R. <sup>1</sup>	Source	Census industry classification	Price flexibility		Price indexes											
			Raw or manufactured, N. B. E. R.	Raw, semi-finished or finished	Durable, non-durable, B. L. S.	Durable, semi-durable, non-durable				Frequency of change 1929-33 N. R. C.	Sensitivity N. R. C.	1929=100											
												Changes in 95 changes	Group No.	Index of desensitization	Group No.	1926	1929	1932	1937				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
I. FARM PRODUCTS																							
Grains																							
1	Barley, malting	1929-38	R	R	R				M	F	F	C	A		Agriculture	95	X-b	55.2	10	100.5	100.0	61.3	133.0
2	Corn	1913-38	R	R	R				M	F	F	C	A		do.	95	X-b	71.5	10	79.9	100.0	32.9	108.8
3	Corn, No. 2, Yellow	1913-38	R	R	R				M	F	F	C	A		do.	Included in 2c.							
4	Corn, No. 3, Yellow	1913-38	R	R	R				M	F	F	C	A		do.	95	X-b	52.0	10	88.6	100.0	43.0	90.0
5	Oats, No. 2, White	1913-38	R	R	R				M	F	F	C	A		do.	95	X-b	59.5	10	93.9	100.0	38.6	96.2
6	Rye, No. 2	1913-38	R	R	R				M	F	F	C	A		do.	95	X-b	54.1	10	118.2	100.0	43.7	95.6
7	Wheat	1913-38	R	R	R				M	F	F	C	A		do.	Included in 6c.							
8	Wheat, No. 2, Red Winter	1913-38	R	R	R				M	F	F	C	A		do.								
9	Wheat, No. 2, Hard	1913-38	R	R	R				M	F	F	C	A		do.								
10	Wheat, No. 1, Northern Spring	1913-38	R	R	R				M	F	F	C	A		do.								
11	Wheat, No. 2, Dark Northern Spring	1913-38	R	R	R				M	F	F	C	A		do.								
12	Wheat, No. 1, Hard White	1913-38	R	R	R				M	F	F	C	A		do.								
13	Wheat, No. 2, Red Winter	1913-38	R	R	R				M	F	F	C	A		do.								
Livestock and poultry																							
14	Calves, weaners	1913-38	R	R	RS				M	F	F	A	A		do.	94	X-a	44.0	9	82.4	100.0	40.9	69.9
15	Cows	1913-38	R	R	RS				M	F	F	A	A		do.	94	X-a	48.9	10	70.2	100.0	41.4	80.6
16	Cows, fair to good	1913-38	R	R	RS				M	F	F	A	A		do.	Included in 13c.							
17	Cows, good to choice	1913-38	R	R	RS				M	F	F	A	A		do.	95	X-b	45.9	9	41.6	100.0	32.6	57.0
18	Steers, fair to good	1913-38	R	R	RS				M	F	F	A	A		do.	Included in 15c.							
19	Steers, good to choice	1913-38	R	R	RS				M	F	F	A	A		do.	94	X-a	63.0	10	121.2	100.0	37.8	101.5
20	Hogs	1913-38	R	R	RS				M	F	F	A	A		do.	Included in 17c.							
21	Hogs, heavy butchers	1913-38	R	R	RS				M	F	F	A	A		do.	88	IX	54.6	10	103.5	100.0	32.6	74.3
22	Hogs, light butchers	1913-38	R	R	RS				M	F	F	A	A		do.	Included in 19c.							
23	Sheep	1913-38	R	R	RS				M	F	F	A	A		do.	94	X-a	46.0	9	98.6	100.0	42.1	76.3
24	Ewes, natives	1913-38	R	R	RS				M	F	F	A	A		do.	Included in 19c.							
25	Lambs, western	1913-38	R	R	RS				M	F	F	A	A		do.	95	X-b	28.4	7	93.8	100.0	55.0	66.7
26	Wethers, fed	1913-38	R	R	RS				M	F	F	A	A		do.	Included in 22c.							
27	Poultry, live	1913-38	R	R	RS				M	F	F	A	A		do.								
28	Poultry, live, Chicago	1913-38	R	R	RS				M	F	F	A	A		do.								
29	Poultry, live, New York	1913-38	R	R	RS				M	F	F	A	A		do.								
Other farm products																							
30	Cotton, middling	1913-38	R	R	R				M	O	F	C	A		do.	95	X-b	46.3	9	91.1	100.0	33.7	60.0
31	Cotton, Galveston	1913-38	R	R	R				M	O	F	C	A		do.	Included in 24c.							
32	Cotton, New Orleans	1913-38	R	R	R				M	O	F	C	A		do.								
33	Cotton, New York	1913-38	R	R	R				M	O	F	C	A		do.	94	X-a	30.8	7	91.3	100.0	55.2	65.9
34	Eggs, fresh	1913-38	R	R	RF				C	F	F	A	A		do.	Included in 27c.							
35	Eggs, Boston	1913-38	R	R	RF				C	F	F	A	A		do.								
36	Eggs, Chicago	1913-38	R	R	RF				C	F	F	A	A		do.								
37	Eggs, Cincinnati	1913-38	R	R	RF				C	F	F	A	A		do.								
38	Eggs, New Orleans	1913-38	R	R	RF				C	F	F	A	A		do.								
39	Eggs, New York	1913-38	R	R	RF				C	F	F	A	A		do.	94	X-a	28.2	7	114.0	100.0	53.8	64.0
40	Eggs, Philadelphia	1913-38	R	R	RF				C	F	F	A	A		do.	Included in 27c.							
41	Eggs, San Francisco	1913-38	R	R	RF				C	F	F	A	A		do.								
42	Apples, Chicago	1913-38	R	R	RF				C	F	F	A	A		do.	Discarded— inadequate data.							
43	Apples, New York	1913-38	R	R	RF				C	F	F	A	A		do.	95	X-b	22.6	5	67.6	100.0	52.0	49.3
44	Apples, Seattle	1913-38	R	R	RF				C	F	F	A	A		do.	86	IX	45.8	9	78.2	100.0	39.6	70.7
45	Lemons	1913-38	R	R	RF				C	F	F	A	A		do.	95	X-b	18.0	5	65.0	100.0	66.7	69.5
46	Oranges	1913-38	R	R	RF				C	F	F	A	A		do.	95	X-b	23.3	6	91.1	100.0	58.4	67.4
47	Alfalfa hay	1913-38	R	R	R				M	F	F	C	A		do.	91	IX	39.4	8	85.6	100.0	49.4	77.6
48	Hay	1913-38	R	R	R				M	F	F	C	A		do.	83	IX	29.3	7	119.0	100.0	65.2	89.0
49	Hay, clover	1913-38	R	R	R				M	F	F	C	A		do.	Included in 40c.							
50	Hay, timothy	1913-38	R	R	R				M	F	F	C	A		do.								
51	Hops	1913-38	R	R	R				M	F	F	C	A		do.	94	X-a	47.4	9	172.4	100.0	100.2	195.2
52	Milk, Chicago	1913-38	R	R	RF				C	F	F	A	A		do.	29	VI	11.4	3	94.5	100.0	73.8	70.3
53	Milk, New York	1913-38	R	R	RF				C	F	F	A	A		do.	30	VI	30.0	7	90.7	100.0	59.6	79.1
54	Milk, San Francisco	1913-38	R	R	RF				C	F	F	A	A		do.	13	IV	19.6	5	99.7	100.0	72.3	83.7
55	Peanuts	1913-38	R	R	RS				C	F	F	C	A		do.	73	VIII	61.2	10	100.2	100.0	29.0	80.4
56	Alfalfa seed	1913-38	R	R	R				M	F	F	C	A		do.	61	VIII	55.2	10	69.2	100.0	61.7	127.7
57	Clover seed	1913-38	R	R	R				M	F	F	C	A		do.	90	IX	72.4	10	116.0	100.0	47.3	139.4
58	Flaxseed	1913-38	R	R	R				M	F	F	C	A		do.	95	X-b	45.8	9	84.2	100.0	42.7	76.9
59	Timothy seed	1913-38	R	R	R				M	F	F	C	A		do.	83	IX	34.0	8	122.9	100.0	55.8	79.5
60	Tobacco, leaf	1926-38	R	R	RS				M	O	F	C	A		do.	95	X-b	68.0	10	99.2	100.0	42.1	120.2
61	Beans, dried	1913-38	R	R	RF				C	F	F	C	A		do.	93	X-a	56.6	10	54.5	100.0	25.2	63.5
62	Onions	1913-38	R	R	RF				C	F	F	C	A		do.	94	X-a	3.4	2	82.4	100.0	73.5	53.7
63	Sweet potatoes	1913-38	R	R	RF				C	F	F	C	A		do.	78	IX	44.4	9	135.3	100.0	33.3	55.5
64	Potatoes	1913-38	R	R	RF				C	F	F	C	A		do.	94	X-a	45.8	9	182.1	100.0	48.5	88.5
65	Potatoes, Boston	1913-38	R	R	RF				C	F	F	C	A		do.	Included in 55c.							
66	Potatoes, Chicago	1913-38	R	R	RF				C	F	F	C	A		do.								
67	Potatoes, New York	1913-38	R	R	RF				C	F	F	C	A		do.								
68	Potatoes, Oregon	1913-38	R	R	RF				C	F	F	C	A		do.	89	IX	47.4	9	122.4	100.0	49.1	92.9
69	Wool, domestic	1913-38	R	R	R				M	O	F	A	A		do.	72	VIII	53.1	10	110.1	100.0	45.9	98.0
70	Wool, grease, cloth	1913-38	R	R	R				M	O	F	A	A		do.								
71	Wool, grease, delaine	1913-38	R	R	R				M	O	F	A	A		do.								
72	Wool, grease, half blood	1913-38	R	R	R				M	O	F	A	A		do.	Included in 59c.							
73	Wool, grease, medium	1913-38	R	R	R				M	O	F	A	A		do.								
74	Wool, scoured, fine	1913-38	R	R	R				M	O	F	A	A		do.								
75	Wool, scoured, half blood	1913-38	R	R	R				M	O	F	A	A		do.								

TABLE I.—*Tentative price classification—Continued*

B. L. S. code number	Name of commodity	Price data available	Fabrication		Durability				Source	Census industry classification	Price flexibility		Price indexes											
			Raw or manufactured, N. R. E. R.	Raw, semifinished or finished, N. R. C.	Durable, nondurable, B. L. S.	Durable, nondurable, N. R. E. R.	Durable, nondurable, N. R. C.	Use, N. B. E. R. 1			Clothing, food, and other, N. R. C.	Farmer, N. B. E. R.	Crop, animal, forest, or mine, N. B. E. R.	Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, differentiated or standard, N. R. C.	Frequency of change 1926-33 N. R. C.	Sensitivity N. R. C.	1929=100						
																		Changes in 35 changes	Group number	Index of price sensitivity	Group number	1926	1929	1932
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	
I. FARM PRODUCTS—continued																								
Other farm products—Continued																								
65e	Wool, foreign.....	1913-38	R	R	R	.....	.....	.....	M	O	F	A	A-1	Import.....		63	VIII	60.4	101	95.8	100.0	36.8	94.3	
65	Wool, Argentine.....	1913-38	R	R	R	.....	.....	.....	M	O	F	A	A-1	do.....		do								
66	Wool, Australian.....	1913-38	R	R	R	.....	.....	.....	M	O	F	A	A-1	do.....		do								
67	Wool, Montevideo.....	1913-38	R	R	R	.....	.....	.....	M	O	F	A	A-1	do.....		do								
II. FOODS																								
Dairy products																								
68e	Butter, creamery.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....		94	X-a	44.1	91	62.7	100.0	30.6	49.4	
68	Butter, Boston Extra.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
69	Butter, Boston, 1st.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
70	Butter, Boston, 2d.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
71	Butter, Chicago, Extra.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
72	Butter, Chicago, Extra, 1st.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
73	Butter, Chicago, 1st.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
74	Butter, Cincinnati.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
75	Butter, New Orleans, Fancy.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
76	Butter, New Orleans, Choice.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
77	Butter, New York, Extra.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
78	Butter, New York, 1st.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
79	Butter, New York, 2d.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
80	Butter, Philadelphia, Extra.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
81	Butter, Philadelphia, Extra, 1st.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
82	Butter, Philadelphia, 1st.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
83	Butter, St. Louis.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
84	Butter, San Francisco, Extra.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
85	Butter, San Francisco, 1st.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	103.....										
86e	Cheese, whole, milk.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	107.....		94	X-a	35.7	81	99.2	100.0	53.8	79.0	
86	Cheese, Chicago.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	107.....										
87	Cheese, New York.....	1926-38	M	F	F	F	.....	.....	C	F	F	A	A	107.....										
88	Cheese, San Francisco.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	107.....										
89	Condensed milk.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	D 111.....		38	VII	12.8	3	95.4	100.0	76.9	79.4	
90	Evaporated milk.....	1913-38	M	F	F	F	.....	.....	C	F	F	A	A	D 111.....		50	VIII	26.1	6	103.0	100.0	65.4	83.0	
91	Powdered skim milk.....	1926-38	M	F	F	F	.....	.....	C	F	F	A	A	D 111.....		42	VII	39.0	8	129.2	100.0	55.9	86.7	
Cereal products																								
92	Bread, Chicago.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	M	D 102.....		14	IV	-4.9	1	100.0	100.0	93.7	77.7	
93	Bread, Cincinnati.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	M	D 102.....		17	V	30.2	7	100.1	100.0	64.5	85.0	
94	Bread, New Orleans.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	M	D 102.....		16	IV	34.0	8	107.5	100.0	64.1	96.2	
95	Bread, New York.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	M	D 102.....		5	II	10.3	3	105.7	100.0	90.9	102.4	
96	Bread, San Francisco.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	M	D 102.....		6	II	-1.8	1	111.4	100.0	102.6	101.7	
97	Cereal, corn.....	1926-38	M	F	F	F	.....	.....	C	F	F	C	M	C 106.....		1	I	-3.1	1	100.0	100.0	100.0	93.8	
98	Cereal, oatmeal.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	D 106.....		95	X-b	42.6	9	98.0	100.0	58.4	101.9	
99	Cereal, wheat.....	1926-38	M	F	F	F	.....	.....	C	F	F	C	M	C 106.....		4	I	10.6	3	100.0	100.0	87.4	96.1	
100	Crackers, soda.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	M	D 102.....		11	III	22.9	5	133.9	100.0	82.9	111.6	
101	Crackers, sweet.....	1926-38	M	F	F	F	.....	.....	C	F	F	C	M	C 102.....		11	III	5.6	2	104.2	100.0	96.7	103.7	
102	Flour, rye.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....		95	X-b	39.7	9	89.5	100.0	50.4	80.2	
103e	Flour, wheat.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....		92	IX	39.6	9	123.2	100.0	57.9	95.1	
103	Flour, Standard Patent, Buffalo.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....										
104	Flour, 1st, clear, Buffalo.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....										
105	Flour, Short Patents, Kansas City.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....										
106	Flour, Straight, Kansas City.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....										
107	Flour, Standard Patents, Minneapolis.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....										
108	Flour, 2d, Patents, Minneapolis.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....										
109	Flour, Patents, Oregon.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....										
110	Flour, Shorts, Patents, St. Louis.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....										
111	Flour, Straight, St. Louis.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....										
112	Flour, Standard Patents, Toledo.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....										
113	Hominy grits.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	106.....		95	X-b	77.6	10	81.4	100.0	34.0	123.1	
114	Macaroni.....	1926-38	M	F	F	F	.....	.....	C	F	F	C	M	D 121.....		32	VI	41.0	9	118.5	100.0	65.4	112.9	
115	Corn meal, white.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....		95	X-b	77.6	10	81.4	100.0	34.0	123.1	
116	Corn meal, yellow.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	116.....		88	IX	59.0	10	91.2	100.0	42.6	103.1	
117	Pretzels.....	1926-38	M	F	F	F	.....	.....	C	F	F	C	M	D 102.....		10	IX	12.8	3	96.2	100.0	96.4	114.8	
118	Rice, Blue Rose.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	127.....		80	IX	38.0	8	160.5	100.0	58.4	142.8	
119	Rice, Edith.....	1913-38	M	F	F	F	.....	.....	C	F	F	C	A	127.....		72	VIII	16.2	4	154.6	100.0	73.0	78.5	
Fruits and vegetables																								
120	Canned apples.....	1926-38	.....	F	F	F	.....	.....	.....	F	.....	.....	M	D 105.....		27	VI	20.3	5	84.9	100.0	75.8	92.2	
121	Canned apricots.....	1926-38	.....	F	F	F	.....	.....	.....	F	.....	.....	M	D 105.....		58	VIII	23.4	6	109.9	100.0	68.1	83.1	
122	Canned cherries.....	1926-38	.....	F	F	F	.....	.....	.....	F	.....	.....	M	D 105.....		24	VI	25.6	6	102.0	100.0	62.9	77.0	
123	Canned peaches.....	1926-38	M	F	F	F	.....	.....	.....	F	F	F	C	M	D 105.....		6	VII	24.8	6	105.2	100.0	63.9	77.3
124	Canned pears.....	1926-38	.....	F	F	F	.....	.....	.....	F	.....	.....	M	D 105.....		6	VII	23.7	6	95.6	100.0	56.3	66.0	
125	Canned pineapple.....	1926-38	M	F	F	F	.....	.....	.....	F	.....	.....	M	D 105.....		25	VI	26.6	6	95.9	100.0	64.5	82.3	
126	Dried apples.....	1913-38	.....	F	F	F	.....	.....	.....	F	.....	.....	C	A 105.....		51	IX	39.0	8	84.4	100.0	48.4	74.9	

TABLE I.—Tentative price classification—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication		Durability		Source	Census industry classification	Price flexibility		Price indexes														
			Raw or manufactured, N. B. E. R.	Raw, semi-finished or finished	Durable, nondurable, B. L. S.	Durable, semi-durable, nondurable			Frequency of change 1929-33 N. R. C.	Sensitivity 1929-33 N. R. C.	1929=100														
											Changes in 95 changes	Group number	Index of desensitization	Group number											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)		
II. FOODS—continued																									
Fruits and vegetables—Contd.																									
127	Dried apricots.....	1926-38	.....	F	SF	ZZZ	.....	.....	F	.....	A	.....	105	.....	89	IX	37.2	8	137.7	100.0	42.7	59.8	82.0		
128	Dried currants.....	1913-38	.....	F	SF	ZZZ	.....	.....	F	.....	A	.....	105	.....	89	VII	3.6	2	70.7	100.0	85.4	82.0	82.0		
129	Dried peaches.....	1926-38	.....	F	SF	ZZZ	.....	.....	F	.....	A	.....	105	.....	89	IX	36.6	8	114.3	100.0	46.5	66.3	66.3		
130	Dried prunes.....	1926-38	.....	F	SF	ZZZ	.....	.....	F	.....	A	.....	105	.....	92	IX	38.2	8	77.3	100.0	55.1	46.6	46.6		
131	Raisins, seedless.....	1926-38	M	F	SF	ZZZ	.....	.....	F	.....	A	.....	105	.....	82	IX	1.4	142.2	100.0	103.8	108.7	108.7	108.7		
132	Bananas.....	1913-38	R	R	RF	ZZZ	.....	.....	F	.....	A	.....	105	.....	50	VIII	9.0	3	138.9	100.0	97.8	113.5	113.5		
133	Canned asparagus.....	1926-38	.....	F	SF	ZZZ	.....	.....	F	.....	M	.....	D	105	.....	22	V	13.3	4	101.5	100.0	86.0	98.6	98.6	
134	Canned baked beans.....	1926-38	.....	F	SF	ZZZ	.....	.....	F	.....	M	.....	D	105	.....	25	V	27.2	6	96.2	100.0	68.7	91.7	91.7	
135	Canned corn.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	M	.....	D	105	.....	31	VII	29.7	7	91.0	100.0	60.2	73.6	73.6	
136	Canned peas.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	M	.....	D	105	.....	35	VII	1.1	106.3	100.0	96.8	93.8	93.8		
137	Canned spinach.....	1926-38	.....	F	SF	ZZZ	.....	.....	F	.....	M	.....	D	105	.....	56	VII	8.6	3	99.2	100.0	87.5	92.3	92.3	
138	Canned string beans.....	1913-38	.....	F	SF	ZZZ	.....	.....	F	.....	M	.....	D	105	.....	45	VII	76.6	3	76.6	100.0	51.2	64.7	64.7	
139	Canned tomatoes.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	M	.....	D	105	.....	36	VII	31.8	4	85.5	100.0	67.1	67.9	67.9	
Meats																									
140	Beef, cured.....	1923-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	90	IX	42.5	9	83.1	100.0	48.7	82.4	82.4
141	Beef, fresh.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	74	VIII	35.8	8	71.7	100.0	60.6	92.9	92.9
141	Beef, fresh, Chicago.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	74	VIII	35.8	8	71.7	100.0	60.6	92.9	92.9
142	Beef, fresh, New York.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	94	X-a	32.1	7	102.4	100.0	52.4	69.0	69.0
143	Lamb, fresh.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	94	X-a	32.2	7	102.4	100.0	52.4	69.0	69.0
144	Mutton, fresh.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	94	X-a	32.2	7	102.4	100.0	52.4	69.0	69.0
145	Bacon.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	94	X-a	32.2	7	102.4	100.0	52.4	69.0	69.0
146	Cured pork belly cleared.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	94	X-a	32.2	7	102.4	100.0	52.4	69.0	69.0
147	Cured pork belly rib.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	94	X-a	32.2	7	102.4	100.0	52.4	69.0	69.0
148	Cured hams.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	94	X-a	32.2	7	102.4	100.0	52.4	69.0	69.0
149	Mess pork.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	90	IX	46.1	9	123.3	100.0	57.3	106.8	106.8
150	Pork, fresh, comp.....	1923-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	93	X-a	57.1	10	122.2	100.0	42.7	99.6	99.6
151	Veal, fresh.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	123	.....	92	IX	32.6	9	82.0	100.0	39.7	61.6	61.6
152	Poultry, dressed, Chicago.....	1926-38	.....	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	126	.....	85	IX	27.4	6	96.4	100.0	57.0	68.9	68.9
153	Poultry, dressed, New York.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	F	.....	A	.....	126	.....	93	X-a	26.8	6	97.8	100.0	54.7	62.9	62.9
Other foods																									
154	Ginger ale.....	1926-38	.....	F	F	ZZ	.....	.....	F	.....	.....	M	U	101	.....	2	I	.....	1	99.8	100.0	82.5	64.8	64.8	
155	Grape juice.....	1926-38	.....	F	SF	ZZZ	.....	.....	F	.....	.....	M	U	105	.....	10	III	17.6	5	100.0	100.0	71.7	78.5	78.5	
156	Plain soda.....	1926-38	.....	F	F	ZZ	.....	.....	F	.....	.....	M	U	101	.....	4	I	1.6	2	100.0	100.0	94.5	92.3	92.3	
157	Pickled herring.....	1913-38	R	R	RS	ZZ	.....	.....	F	.....	N	C	.....	Import	.....	95	X-b	25.4	6	116.7	100.0	60.1	71.1	71.1	
158	Powdered cocoa.....	1926-38	.....	F	SF	ZZ	.....	.....	F	.....	.....	M	U	Import	.....	99	III	11.0	3	100.0	100.0	72.5	67.7	67.7	
159	Coffee, Rio.....	1913-38	R	R	RS	ZZ	.....	.....	F	.....	N	C	A-I	Import	.....	94	X-a	26.8	6	115.6	100.0	51.2	56.0	56.0	
160	Coffee, Santos.....	1913-38	R	R	RS	ZZ	.....	.....	F	.....	N	C	A-I	do.	.....	94	X-a	26.6	6	100.9	100.0	48.4	50.1	50.1	
161	Copra.....	1913-38	R	R	RS	ZZ	.....	.....	F	.....	N	C	A-I	do.	.....	94	X-a	26.6	6	100.9	100.0	48.4	50.1	50.1	
162	Canned salmon, pink.....	1926-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	104	.....	30	VI	25.6	6	89.0	100.0	61.1	73.3	73.3
163	Canned salmon, red.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	104	.....	58	VIII	25.4	6	122.7	100.0	68.6	87.9	87.9
164	Pickled cod.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	104	.....	56	VIII	27.6	7	91.9	100.0	65.3	85.9	85.9
165	Pickled herring.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	104	.....	60	VIII	24.2	4	85.3	100.0	55.9	40.2	40.2
166	Salt in keckel.....	1926-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	104	.....	58	VIII	42.7	9	74.5	100.0	42.0	60.1	60.1
167	Smoked salmon.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	104	.....	54	VIII	27.6	7	81.2	100.0	56.5	68.3	68.3
168	Glucose.....	1913-38	M	F	S	ZZ	.....	.....	F	.....	N	C	M	D	113	.....	35.4	8	87.5	100.0	64.9	100.5	100.5	100.5	
169	Grape jam.....	1926-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	105	.....	17	V	11.4	3	116.4	100.0	65.5	33.9	33.9
170	Lard.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	123	.....	56.8	10	125.6	100.0	42.1	97.9	97.9	97.9	
171	Molasses.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	130	.....	17	V	8.8	3	98.9	100.0	83.9	85.3	85.3
172	Oleomargarine.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	140	.....	40	VII	8.8	9	97.1	100.0	41.4	60.1	60.1
173	Med. oil.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	124	.....	55	VI	11.0	4	110.0	100.0	51.8	113.5	113.5
174	Peanut butter.....	1926-38	.....	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	117	.....	22	V	42.7	9	99.0	100.0	53.1	91.6	91.6
175	Black pepper.....	1913-38	R	R	RS	ZZ	.....	.....	F	.....	N	C	M	D	117	.....	94	X-a	29.8	7	74.3	100.0	29.1	17.8	17.8
176	Salt.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	630	.....	14	IV	1.6	2	99.1	100.0	105.0	114.9	114.9
177	Canned soup (tomato).....	1926-38	.....	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	117	.....	17	V	7.5	2	99.9	100.0	92.0	99.0	99.0
178	Corn starch.....	1913-38	.....	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	113	.....	17	V	27.1	6	100.0	100.0	61.7	77.6	77.6
179	Sugar, granulated.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	131	.....	92	IX	17.7	5	108.5	100.0	79.2	93.8	93.8
180	Sugar, raw.....	1913-38	R	R	RS	ZZ	.....	.....	F	.....	N	C	M	D	130	.....	94	X-a	18.2	5	115.5	100.0	77.7	91.8	91.8
181	Tallow (edible).....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	M	D	123	.....	93	X-a	58.0	10	106.8	100.0	39.2	96.0	96.0
182	Formosa tea.....	1913-38	M	F	RF	ZZZ	.....	.....	F	.....	N	C	A-I	Import	.....	22	V	35.3	8	111.5	100.0	58.1	86.8	86.8	
183	Cocunut oil.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	A-I	.....	113	.....	81	IX	45.9	9	125.0	100.0	53.1	98.0	98.0
184	Corn oil.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	A-I	.....	113	.....	61	VIII	50.2	10	116.4	100.0	48.4	97.3	97.3
185	Cottonseed oil.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	A-I	.....	120	.....	58	IX	10	122.2	100.0	55.9	85.1	85.1	
186	Olive oil.....	1913-38	M	F	SF	ZZZ	.....	.....	F	.....	N	C	A-I	.....	120	.....	37	VII	23.2	5	88.7	100.0	82.3	110.9	110.9
187	Peanut oil.....	1916-38	.....	F	SF	ZZZ	.....	.....	F	.....	N	C	A-I	.....	120	.....	76	VIII	57.8	10	125.6	100.0	39.9	95.5	95.5
188	Soybean oil.....	1913-38	.....	F	SF	ZZZ</																			



TABLE I.—Tentative price classification—Continued

R. L. S. code number	Name of commodity	Price data available	Fabrication		Durability		Source	Census industry classification	Price flexibility		Price indexes												
			Raw of manufactured, N. B. E. R.	Raw, semifinished or finished, N. R. C.	Durable, nondurable, B. L. S.	Durable, semi-durable, non-durable, N. R. E. R.			Frequency of change 1926-33 N. R. C.	Sensitivity N. R. C.	1929=100												
											Changes in 35 classes	Index of depression	1926	1929	1932	1937							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
III. HIDES AND LEATHES—PRODUCTS—continued																							
Shoes—Continued																							
197	Shoes, dress.	1926-38	M	F	F	F			C		F	A	M	U	904	11	III	24.6	6	89.4	100.0	97.0	143.3
198	Shoes, series 1	1913-38	M	F	F	F			C		F	A	M	U	904	Included in 194e.							
199	Shoes, series 2	1913-38	M	F	F	F			C		F	A	M	U	904	Included in 194e.							
200	Shoes, side, oxford.	1926-38	M	F	F	F			C		F	A	M	U	904	Included in 194e.							
201	Shoes, men's	1913-38	M	F	F	F			C		F	A	M	U	904	22	V	18.6	5	95.1	100.0	87.6	111.2
202	Shoes, kid.	1913-38	M	F	F	F			C		F	A	M	U	904	41	VII	25.2	6	86.4	100.0	67.1	84.5
203	Shoes.	1913-38	M	F	F	F			C		F	A	M	U	904	Included in 202e.							
204	Shoes, work.	1926-38	M	F	F	F			C		F	A	M	U	904	Included in 202e.							
205	Shoes, elk.	1913-38	M	F	F	F			C		F	A	M	U	904	Included in 202e.							
206	Shoes, brown.	1913-38	M	F	F	F			C		F	A	M	U	904	21	V	23.0	5	105.5	100.0	79.8	105.7
207	Women's shoes.	1913-38	M	F	F	F			C		F	A	M	U	904	Included in 205e.							
208	Shoes, blucher oxford.	1926-38	M	F	F	F			C		F	A	M	U	904	12	IV	12.4	3	93.5	100.0	90.5	105.8
209	Shoes, women's	1913-38	M	F	F	F			C		F	A	M	U	904	Included in 205e.							
210	Shoes, strap.	1926-38	M	F	F	F			C		F	A	M	U	904	Included in 205e.							
211	Patent leather pumps.	1926-38	M	F	F	F			C		F	A	M	U	904	14	IV	20.0	5	104.9	100.0	63.9	67.8
212	Oxford pumps.	1926-38	M	F	F	F			C		F	A	M	U	904	Included in 205e.							
213	Kid pumps.	1913-38	M	F	F	F			C		F	A	M	U	904	Included in 205e.							
214	Shoes, elk, colors.	1913-38	M	F	F	F			C		F	A	M	U	904	Included in 205e.							
Hides and skins																							
215	Cowhides.	1913-38	R	R	R	R			M	O	F	A	A	S	123	86	IX	60.6	10	82.3	100.0	36.2	93.7
216	Steer hides.	1913-38	R	R	R	R			M	O	F	A	A	S	123	95	X-B	65.6	10	82.4	100.0	36.2	103.5
217	Shear hides, native.	1913-38	R	R	R	R			M	O	F	A	A	S	123	Included in 212e.							
218	Shear hides, Texas.	1913-38	R	R	R	R			M	O	F	A	A	S	123	60	IX	67.5	10	86.4	100.0	30.4	95.8
219	Calfskins.	1913-38	R	R	R	R			M	O	F	A	A	S	123	77	VIII	42.7	9	96.2	100.0	55.2	95.8
220	Goat skins.	1913-38	R	R	R	R			M	O	F	A	A	S	123	84	IX	55.9	10	83.1	100.0	34.9	81.6
221	Kip skins.	1913-38	R	R	R	R			M	O	F	A	A	S	123	90	IX	77.0	10	107.4	100.0	25.5	105.0
222	Sheepskins.	1926-38	R	R	R	R			M	O	F	A	A	S	123	Discarded—Inadequate data.							
Leather																							
223	Chrome leather.	1926-38	M	F	F	F			M	O	F	A	M	S	907	20	V	32.8	7	93.1	100.0	60.1	87.8
224	Harnessed leather.	1926-38	M	F	F	F			M	O	F	A	M	S	907	30	VI	22.4	9	86.7	100.0	68.0	93.7
225	Side chrome leather.	1913-38	M	F	F	F			M	O	F	A	M	S	907	49	VII	36.4	8	88.0	100.0	56.3	85.4
226	Sole leather.	1913-38	M	F	F	F			M	O	F	A	M	S	907	65	VIII	35.8	8	81.0	100.0	52.4	76.4
227	Oak bough.	1926-38	M	F	F	F			M	O	F	A	M	S	907	Included in 222e.							
228	Oak scoured backs.	1913-38	M	F	F	F			M	O	F	A	M	S	907	Discarded—Inadequate data.							
229	Union back leather.	1913-38	M	F	F	F			M	O	F	A	M	S	907	Discarded—Inadequate data.							
230	Leather belting.	1926-38	M	F	F	F			M	O	F	A	M	S	901	7	II	7.4	2	105.0	100.0	87.3	89.9
231	Men's gloves.	1913-38	M	F	F	F			M	O	F	A	M	S	905	5	I	6.3	2	100.0	100.0	83.3	79.2
232	Women's gloves.	1913-38	M	F	F	F			M	O	F	A	M	S	905	9	II	9.4	2	93.7	100.0	87.3	93.7
233	Harness.	1913-38	M	F	F	F			M	O	F	A	M	D	909	19	V	10.8	3	92.1	100.0	87.1	95.9
234	Suitcases.	1913-38	M	F	F	F			M	O	F	A	M	D	910	14	IV	23.8	6	88.4	100.0	77.4	102.3
235	Traveling bags.	1913-38	M	F	F	F			M	O	F	A	M	D	910	14	IV	24.5	6	97.4	100.0	75.5	99.6
IV. TEXTILES																							
Clothing																							
236	Soft collars.	1926-38	F	F	F	F			C		C		M	D	213	4	I	24.5	6	159.0	100.0	70.9	90.8
237	Briff collars.	1926-38	F	F	F	F			C		C		M	D	213	1	I	-3.6	1	92.8	100.0	107.2	107.2
238	Men's cotton kerchiefs.	1926-38	F	F	F	F			C		C		M	D	217	Discarded—Inadequate data.							
239	Women's cotton kerchiefs.	1926-38	F	F	F	F			C		C		M	D	217	Discarded—Inadequate data.							
240	Men's linen kerchiefs.	1926-38	F	F	F	F			C		C		M	D	217	Discarded—Inadequate data.							
241	Women's linen kerchiefs.	1926-38	F	F	F	F			C		C		M	D	217	Discarded—Inadequate data.							
242	Hats, finished.	1926-38	F	F	F	F			C		C		M	D	217	Discarded—Inadequate data.							
243	Hats, unfinished.	1926-38	F	F	F	F			C		C		M	D	217	Discarded—Inadequate data.							
244	Overalls.	1926-38	F	F	F	F			C		C		M	D	213	9	III	1937 data lacking.					
245	Overcoats.	1926-38	F	F	F	F			C		C		M	D	213	36	VII	45.9	9	104.5	100.0	61.8	115.4
246	Dress shirts.	1926-38	F	F	F	F			C		C		M	D	213	9	III	25.6	6	120.3	100.0	99.9	137.9
247	Work shirts.	1926-38	F	F	F	F			C		C		M	D	213	2	I	6.4	1	100.0	100.0	96.7	93.7
248	Boys' 4-piece suits.	1926-38	F	F	F	F			C		C		M	D	213	16	IV	30.1	7	103.2	100.0	68.6	97.4
249	Men's 3-piece suits.	1926-38	F	F	F	F			C		C		M	D	215	11	III	32.0	7	100.0	100.0	72.6	109.2
250	Men's 4-piece suits.	1926-38	F	F	F	F			C		C		M	D	215	19	III	33.2	7	117.5	100.0	77.6	121.5
251	Youth's 4-piece suits.	1926-38	F	F	F	F			C		C		M	D	215	11	IV-A	38.0	8	110.3	100.0	69.1	114.1
252	Topcoats.	1926-38	F	F	F	F			C		C		M	D	215	Discarded—Inadequate data.							
253	Boys' knickerbockers.	1926-38	F	F	F	F			C		C		M	D	215	9	III	25.0	6	121.7	100.0	77.6	105.1
254	Men's dress trousers.	1926-38	F	F	F	F			C		C		M	D	215	17	V	49.4	10	115.0	100.0	59.4	117.7
255	Men's work trousers.	1926-38	F	F	F	F			C		C		M	D	213	20	V	31.4	7	110.4	100.0	69.6	101.9
256																11	III	29.0	7	122.2	100.0	68.3	94.5
Cotton goods																							
257	Broadcloth.	1926-38	F	F	F	F			C		C		M	D	203	Discarded—Inadequate data.							
258	Damask.	1926-38	F	F	F	F			C		C		M	D	203	15	IV	26.5	8	100.0	100.0	79.1	111.9
259	Denim.	1913-38	M	F	F	F			C		C		M	D	203	93	VII	24.8	8	93.6	100.0	50.4	75.4
260	Drill, heavy.	1913-38	M	F	F	F			C		C		M	D	203	Discarded—Inadequate data.							
261	Drill, light.	1913-38	M	F	F	F			C		C		M	D	203	68	VIII	43.9	9	102.0	100.0	44.1	75.8
262	Duck, army.	1913-38	M	F	F	F			C		C		M	D	203	70	VIII	38.8	8	93.8	100.0	51.4	80.4
263	Duck, wild.	1913-38	M	F	F	F			C		C		M	D	203	13	III	42.0	9	95.0	100.0	53.0	89.9
264	Flannel, bleached.	1926-38	M	F	F	F			C		C		M	D	203	25	VII	44.0	8	94.2	100.0	60.5	89.0
265	Flannel, beige.	1913-38	M	F	F	F			C		C		M	D	203	37	VII	37.1	8	96.4	100.0	51.8	87.7

TABLE I.—Tentative price classification—Continued

B. L. S. code number (1)	Name of commodity (2)	Price data available (3)	Fabrication		Durability			Use, N. B. E. R. 1 (10)	Source (11)	Clothing, food, and other, N. R. C. (12)	Farmor nonfarm, N. B. E. R. (13)	Crop, animal, forest, or mineral, N. B. E. R. (14)	Agriculture, manufacturing, mining, forestry, and fishing, N. R. C. (15)	Product differentiation, unique, differentiated or standard, N. R. C. (16)	Census industry classification (17)	Price flexibility		Price indexes						
			Raw of manu factured, N. B. E. R. (4)	Raw. semifinished or finished (5)	Durable, non-durable, B. L. S. (6)	Durable, semi-durable, non-durable (7)	Frequency of change 1926-32 N. R. C. (18)									Sensitivity N. R. C. (19)	1929=100							
																	Changes in 95 chances (20)	Group number (21)	Index of depression 1929=100 (22)	Group number (23)				
																					1926 (24)	1929 (25)	1932 (26)	1937 (27)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	
IV. TEXTILES—continued																								
Cotton goods—Continued																								
260	Gingham.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	19	V	30.2	9	85.7	100.0	58.8	78.1		
261c	Muslin.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	31	VIII	32.9	7	101.8	100.0	56.6	79.0		
261	Muslin No. 1, 80 x 92	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	Included in 261c.									
262	Muslin No. 2, 80 x 80	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	15	IV	22.4	5	97.4	100.0	67.2	79.3		
263	Muslin No. 3, 80 x 80	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	88	IX	47.5	9	82.1	100.0	43.5	82.0		
264	Muslin No. 4, 96 x 100.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	33	VI	32.6	7	95.6	100.0	58.5	82.2		
265	Osnaburg	1926-38	M	F	U	U	U	U	C	C	F	C	M	203	93	X-a	46.0	9	99.6	100.0	50.0	91.9		
266	Percale	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	95	X-b	45.0	9	101.3	100.0	47.2	84.3		
267	Print cloth, 25-inch.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	13	IV	26.6	6	113.0	100.0	73.2	99.5		
268	Print cloth, 38½-inch.	1926-38	M	F	U	U	U	U	C	C	F	C	M	203	40	VII	34.5	8	98.2	100.0	54.4	77.8		
269	Filling saateen.	1926-38	M	F	U	U	U	U	C	C	F	C	M	203	Included in 270c.									
270c	Sheeting, bleached.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	64	VIII	43.8	9	103.1	100.0	50.0	87.5		
270	Sheeting, light.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	Included in 272c.									
271	Sheeting, heavy.	1926-38	M	F	U	U	U	U	C	C	F	C	M	203	23	VI	18.8	5	105.6	100.0	72.1	81.7		
272	Sheeting, brown.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	35	VIII	35.6	8	102.8	100.0	60.3	91.7		
273	Sheeting, heavy.	1926-38	M	F	U	U	U	U	C	C	F	C	M	203	38	VII	41.6	9	93.3	100.0	50.7	84.6		
274	Sheeting, medium.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	90	IX	37.6	8	90.6	100.0	47.9	71.1		
275	Sheeting, light.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	86	IX	41.9	9	96.2	100.0	43.8	71.4		
276	Shirting, madras.	1926-38	M	F	U	U	U	U	C	C	F	C	M	203	24	IV	27.6	6	122.7	100.0	72.4	100.0		
277	Shirting, percale.	1926-38	M	F	U	U	U	U	C	C	F	C	M	203	92	IX	43.1	9	100.4	100.0	49.1	84.4		
278	Ticking.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203	Included in 281 c.									
279	Tire cord.	1926-38	M	F	U	U	U	U	C	C	F	C	M	203	94	X-a	45.8	9	98.6	100.0	47.0	85.6		
279	Tire builders.	1926-38	M	F	U	U	U	U	C	C	F	C	M	203	Included in 284 c.									
280	Toweling.	1926-38	M	F	U	U	U	U	C	C	F	C	M	203										
281c	Yarn, carded.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203										
282	Yarn, 10/1, North.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203										
283	Yarn, 40's, South.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203										
284	Yarn, twisted.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203										
284	Yarn, 20/2.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203										
285	Yarn, 40/2.	1913-38	M	F	U	U	U	U	C	C	F	C	M	203										
Knit goods																								
286	Hose, men's cotton.	1913-38	M	F	U	U	U	U	C	C	F	C	M	U	207	24	VI	40.4	9	101.5	100.0	63.6	107.9	
287	Hose, women's, mercerized.	1913-38	M	F	U	U	U	U	C	C	F	C	M	U	207	31	VII	34.2	8	106.6	100.0	60.2	88.8	
288	Hose, women's, rayon.	1924-38	M	F	U	U	U	U	C	C	F	C	M	U	207	35	VIII	37.0	7	122.2	100.0	47.3	50.0	
289	Hose, men's, silk.	1913-38	M	F	U	U	U	U	C	C	F	C	M	U	207	24	VI	18.1	5	124.5	100.0	59.4	55.0	
290	Hose, women's, silk.	1913-38	M	F	U	U	U	U	C	C	F	C	M	U	207	35	VII	32.0	7	120.2	100.0	47.2	58.5	
291	Underwear, men's cotton.	1913-38	M	F	U	U	U	U	C	C	F	C	M	D	207	27	VI	27.4	6	109.4	100.0	73.9	102.7	
292	Unionsuits, women's, cotton.	1913-38	M	F	U	U	U	U	C	C	F	C	M	D	207	13	IV	28.6	6	108.0	100.0	67.9	92.9	
293	Unionsuits, men's, wool.	1913-38	M	F	U	U	U	U	C	C	F	C	M	D	207	4	I	4.2	2	102.2	100.0	95.4	92.1	
294	Underwear, men's wool, 2 pc.	1913-38	M	F	U	U	U	U	C	C	F	C	M	D	207	12	IV	18.3	5	110.7	100.0	82.6	101.8	
295c	Rayon.	1913-38	M	F	U	U	U	U	C	C	F	C	M	629	22	V	22.6	5	146.2	100.0	51.6	48.5		
295	Rayon, 150, 1st	1913-38	M	F	U	U	U	U	C	C	F	C	M	629	Included in 295 c.									
296	Rayon, 150, 2d	1913-38	M	F	U	U	U	U	C	C	F	C	M	629										
297	Rayon, 300, 1st	1913-38	M	F	U	U	U	U	C	C	F	C	M	629										
298	Rayon, 300, 2d	1913-38	M	F	U	U	U	U	C	C	F	C	M	629										
299c	Raw silk.	1913-38	R	R	R	R	R	R	C	C	F	C	M	Import	94	X-a	35.6	8	123.9	100.0	32.5	36.2		
299	Silk, Canton.	1913-38	R	R	R	R	R	R	C	C	F	C	M	do.	Included in 299 c.									
300	Silk, Japan, white.	1913-38	R	R	R	R	R	R	C	C	F	C	M	do.										
301	Silk, Japan, double extra.	1913-38	R	R	R	R	R	R	C	C	F	C	M	do.										
302	Silk, Japan, yellow.	1926-38	R	R	R	R	R	R	C	C	F	C	M	209	35	VII	19.8	5	132.6	100.0	62.1	63.9		
303c	Silk, yarn, domestic.	1913-38	M	F	U	U	U	U	C	C	F	C	M	209	Included in 303 c.									
303	Silk, yarn, 62/1	1913-38	M	F	U	U	U	U	C	C	F	C	M	209	21	V	18.8	5	128.4	100.0	75.1	87.7		
304	Silk yarn, 60/2	1913-38	M	F	U	U	U	U	C	C	F	C	M	209	93	X-a	31.2	7	111.6	100.0	41.3	44.9		
305	Silk yarn, imported.	1913-38	M	F	U	U	U	U	C	C	F	C	M	209	Included in 306 c.									
306c	Silk yarn, thrown.	1926-38	M	F	U	U	U	U	C	C	F	C	M	209										
306	Silk yarn, crepe.	1926-38	M	F	U	U	U	U	C	C	F	C	M	209										
307	Silk yarn, organzine	1926-38	M	F	U	U	U	U	C	C	F	C	M	209										
308	Silk yarn, tram.	1926-38	M	F	U	U	U	U	C	C	F	C	M	209										
Woolen and worsted goods																								
309	Wool broadcloth.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	15	IV	28.4	7	105.5	100.0	67.5	91.8		
310	Wool crepe.	1923-38	M	F	U	U	U	U	C	C	F	C	M	212	28	VI	31.8	8	96.8	100.0	61.8	87.4		
311	Flannel.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	26	VI	26.2	6	113.1	100.0	69.7	91.7		
312	Suiting, worsted.	1923-38	M	F	U	U	U	U	C	C	F	C	M	212	17	V	44.3	9	108.9	100.0	46.6	91.7		
313	Serge.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	26	VI	32.3	7	106.0	100.0	68.3	90.1		
314	Stieland cloth.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	19	V	20.0	5	130.5	100.0	84.3	108.0		
315	Flannel, 7-ounce.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	14	IV	17.6	5	102.2	100.0	74.9	84.4		
316	Overcoating, heavy.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	21	V	36.6	8	101.1	100.0	68.9	111.1		
317	Overcoating, top.	1923-38	M	F	U	U	U	U	C	C	F	C	M	212	23	VI	39.9	9	107.9	100.0	68.7	117.7		
318c	Suiting, serge, 15-ounce.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	32	VI	35.6	8	105.9	100.0	65.1	101.1		
318	Suiting, serge, 15-ounce.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	Included in 318 c.									
319	Suiting, serge, 16-ounce.	1926-38	M	F	U	U	U	U	C	C	F	C	M	212										
320	Uniform serge, fine.	1926-38	M	F	U	U	U	U	C	C	F	C	M	212										
321	Uniform serge, medium.	1926-38	M	F	U	U	U	U	C	C	F	C	M	212										
322	Uniform serge, unfinished.	1926-38	M	F	U	U	U	U	C	C	F	C	M	212										
323	Trousers.	1926-38	M	F	U	U	U	U	C	C	F	C	M	212										
324	Yarn, 2/32 stock.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	Missing									
325c	Yarn, weaving.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	91	VI	40.1	9	96.2	100.0	55.9	92.1		
325	Yarn, half blood.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	72	VIII	40.8	9	105.5	100.0	58.4	98.8		
326	Yarn, fine.	1913-38	M	F	U	U	U	U	C	C	F	C	M	212	Included in 325 c.									

TABLE I.—*Tentative price classification—Continued*

B. L. S. code number (1)	Name of commodity (2)	Price data available (3)	Fabrication			Durability			Use, N. B. E. R. 1 (10)	Source			Census industry classification (16)	Price flexibility			Price indexes					
			Raw or manufactured, N. B. E. R. (4)	Raw, unfinished or finished (5)		Durable, non-durable, R. L. S. (7)	Durable, non-durable (8)			Farmer or consumer, N. B. E. R. (11)	Crop, animal, forest, or mineral, N. B. E. R. (12)	Agriculture, manufacturing, mining, forestry, and fishing, N. B. E. R. (13)		Product differentiation, unique, differentiated or standard, N. B. E. R. (14)	Frequency of change 1929-33, N. R. C. (17)	Sensitivity 1929-33, N. R. C. (18)	Sensitivity 1929-33, N. R. C. (19)	1929=100				
				B. L. S. (5)	N. R. C. (6)		N. B. E. R. (8)	N. R. C. (9)										Changes in 45 changes (17)	Group number (18)	Index of price sensitivity (Group number) (19)	1926 (21)	1929 (22)
IV. TEXTILES—continued																						
Other textile products																						
327	Burlap.....	1913-38	M	F	S	-----	-----	-----	M	O	-----	C	M	202	X-a	30.8	7	107.2	100.0	50.8	63.3	
328	Hemp.....	1913-38	R	R	R	-----	-----	-----	P	O	-----	C	M	Import	IX	61.2	10	131.4	100.0	35.1	92.5	
329	Jute.....	1913-38	R	R	R	-----	-----	-----	P	O	-----	C	M	do.	IX	40.8	9	124.2	100.0	41.6	64.5	
330	Artificial leather, heavy.....	1929-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	220	IV	4.2	2	98.1	100.0	84.8	78.0	
331	Artificial leather, light.....	1929-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	220	IV	6.8	2	98.1	100.0	82.4	78.5	
332	Cotton rope.....	1926-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	203	566 VIII	35.2	8	110.4	100.0	54.6	79.6	
333	Manila rope.....	1926-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	202	V	21.6	5	110.9	100.0	70.0	83.3	
334	Sisal rope.....	1926-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	202	35 IV	20.8	5	108.9	100.0	68.5	78.5	
335	Sisal.....	1913-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	Import	45 VII	57.2	10	120.5	100.0	30.7	75.7	
336	Cotton thread.....	1913-38	M	F	RS	-----	-----	-----	M	O	-----	C	M	203	5 II	18.2	1	100.0	100.0	95.9	55.3	
337	Linen thread.....	1913-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	202	6 II	9.8	3	99.7	100.0	90.4	100.4	
338	Binder twine.....	1913-38	M	F	SF	-----	-----	-----	M	O	-----	C	M	202	14 IV	28.5	7	122.9	100.0	59.2	75.4	
339	Cotton twine.....	1926-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	203	51 IX	45.0	9	88.7	100.0	44.5	79.1	
340	Hard fiber twine.....	1926-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	202	20 V	40.2	9	112.1	100.0	51.3	83.0	
341	Jute yarn.....	1929-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	202	18 V	22.5	5	121.4	100.0	68.7	82.4	
341	Jute yarn No. 1.....	1929-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	202	18 V	22.5	5	121.4	100.0	68.7	82.4	
342	Jute yarn No. 2.....	1926-38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	M	202	-----	-----	-----	-----	-----	-----	-----	
V. FUEL AND LIGHTING																						
Anthracite																						
343	Anthracite, chestnut.....	1923-38	R	R	RF	-----	-----	-----	C	O	-----	N	M	Mi	Mining	38 VII	-3.9	1	106.8	100.0	94.6	81.4
344	Anthracite, egg.....	1923-38	R	R	RF	-----	-----	-----	C	O	-----	N	M	Mi	do.	VII	-2.0	1	105.6	100.0	92.7	81.5
345	Anthracite, pea.....	1923-38	R	R	RF	-----	-----	-----	C	O	-----	N	M	Mi	do.	VII	-8.8	1	116.0	100.0	108.4	99.3
Bituminous																						
346	Soft coal, mine run.....	1923-38	R	R	R	-----	-----	-----	M	O	-----	N	M	Mi	do.	24 VI	12.3	3	109.2	100.0	92.0	108.6
347	Soft coal, sizes.....	1923-38	R	R	RF	-----	-----	-----	M	O	-----	N	M	Mi	do.	49 VII	17.6	5	106.4	100.0	83.9	103.0
348	Soft coal, screening.....	1923-38	R	R	R	-----	-----	-----	M	O	-----	N	M	Mi	do.	35 VII	13.6	4	111.2	100.0	94.1	115.5
Coke																						
349	Beehive coke.....	1913-38	M	F	S	-----	-----	-----	P	O	-----	N	M	Mi	701	VIII	52.5	10	147.7	100.0	76.4	137.8
350	Retort coke.....	1913-38	M	F	S	-----	-----	-----	P	O	-----	N	M	Mi	701	VI	23.7	6	118.2	100.0	90.8	129.0
351	Retort coke, Alabama.....	1922-38	M	F	S	-----	-----	-----	P	O	-----	N	M	Mi	701	VI	23.7	6	118.2	100.0	90.8	129.0
352	Retort coke, New Jersey.....	1913-38	M	F	S	-----	-----	-----	P	O	-----	N	M	Mi	701	VI	23.7	6	118.2	100.0	90.8	129.0
352	Retort coke, Chicago.....	1922-38	M	F	S	-----	-----	-----	P	O	-----	N	M	Mi	701	VI	23.7	6	118.2	100.0	90.8	129.0
Electricity																						
353	Electricity.....	1926-38	-----	F	S	-----	-----	N	O	-----	-----	-----	S	Service	-----	-----	-----	-----	-----	-----	-----	
Gas																						
354	Gas.....	1929-38	M	F	SF	-----	N	N	C	O	N	M	S	703	-----	-----	-----	-----	-----	-----	-----	
Petroleum products																						
355	Fuel oil, Oklahoma.....	1913-38	M	F	SF	-----	-----	-----	M	O	-----	N	M	Mi	705	IX	52.6	10	177.0	100.0	58.2	121.6
356	Fuel oil, Pennsylvania.....	1913-38	M	F	SF	-----	-----	-----	M	O	-----	N	M	Mi	705	IX	30.2	7	134.0	100.0	65.8	92.0
357	Gasoline, natural, Oklahoma.....	1921-38	R	F	S	-----	-----	-----	M	O	-----	N	M	Mi	705	X-a	44.2	9	140.1	100.0	34.7	57.7
358	Gasoline, California.....	1925-38	M	F	SF	-----	-----	-----	M	O	-----	N	M	Mi	705	IX	31.7	7	151.5	100.0	72.9	109.2
359	Gasoline, Eastern.....	1913-38	M	F	SF	-----	-----	-----	M	O	-----	N	M	Mi	705	X-a	24.8	6	139.1	100.0	61.2	72.0
359	Gasoline, Northern Texas.....	1913-38	M	F	SF	-----	-----	-----	M	O	-----	N	M	Mi	705	X-a	24.8	6	139.1	100.0	61.2	72.0
360	Gasoline, Oklahoma.....	1913-38	M	F	SF	-----	-----	-----	M	O	-----	N	M	Mi	705	X-a	24.8	6	139.1	100.0	61.2	72.0
361	Gasoline, Pennsylvania.....	1913-38	M	F	SF	-----	-----	-----	M	O	-----	N	M	Mi	705	X-a	24.8	6	139.1	100.0	61.2	72.0
362	Kerosene, Standard.....	1913-38	M	F	SF	-----	-----	-----	M	O	-----	N	M	Mi	705	X	16.5	4	110.3	100.0	70.7	74.4
363	Kerosene, white.....	1913-38	M	F	SF	-----	-----	-----	M	O	-----	N	M	Mi	705	IX	20.8	5	127.6	100.0	65.0	71.6
364	Petroleum, California.....	1913-38	R	R	RS	-----	-----	-----	M	O	-----	N	M	Mi	705	V	19.5	5	127.6	100.0	78.4	95.8
365	Petroleum, Kansas.....	1913-38	R	R	RS	-----	-----	-----	M	O	-----	N	M	Mi	705	45 VII	31.2	7	132.0	100.0	65.7	93.9
366	Petroleum, Pennsylvania.....	1913-38	R	R	RS	-----	-----	-----	M	O	-----	N	M	Mi	705	60 VIII	33.3	8	95.6	100.0	49.7	66.0
VI. METALS AND METAL PRODUCTS																						
Agricultural implements																						
367	Grain binder.....	1913-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	7.8	3	100.8	100.0	94.7	105.0	
368	Cultivator.....	1913-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	12.2	3	108.1	100.0	96.4	117.3	
369	Grain drill.....	1913-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	11.8	3	101.0	100.0	100.0	123.6	
370	Engine, 3 horsepower.....	1913-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	8.1	1	106.8	100.0	95.9	100.3	
371	Hay forks.....	1926-38	-----	F	F	D	-----	D	O	-----	-----	M	D	1125	I	11.2	3	100.0	100.0	90.4	103.3	
372	Disk harrow.....	1926-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	12.0	3	104.2	100.0	92.7	109.3	
373	Perforated harrow.....	1913-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	17.2	4	112.7	100.0	90.3	115.1	
374	Spring-tooth harrow.....	1913-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	17.2	4	112.7	100.0	90.3	115.1	
375	Harvester, threshing.....	1926-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	-2.4	1	100.7	100.0	98.1	91.5	
376	Hoes.....	1926-38	-----	F	F	D	-----	D	O	-----	-----	M	D	1125	I	8.6	3	100.0	100.0	92.0	101.2	
377	Hay loader.....	1913-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	10.9	3	101.0	100.0	94.3	110.4	
378	Hay mower.....	1913-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	13.0	4	106.8	100.0	95.6	117.3	
379	Corn picker.....	1913-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	-7.8	1	116.6	100.0	96.3	77.1	
380	Corn planter.....	1913-37	-----	F	F	D	-----	D	O	-----	-----	M	U	1301	I	6.0	2	100.0	100.0	100.0	112.1	

Included in 341c.

Included in 350c.

Discarded—Data is average realization, not price.

Included in 359c.

TABLE I.—Tentative price classification—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication		Durability		Use, N. B. E. R. 1	Clothing, food and other, N. R. C.	Source	Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.	Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, undifferentiated or standard, N. R. C.	Census industry classification	Price flexibility		Price indexes								
			Raw or manufactured, N. B. E. R.	Raw, unfinished or finished	Durable, nondurable, B. L. S.	Durable, semi-durable, non-durable									Frequency of change 1926-33 N. R. C.	Sensitivity N. R. C.	1929=100								
																	Changes in prices	Group-number	Index of depression sensitivity	Group-number	1926	1929	1932	1937	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)		
VI. METALS AND METAL PRODUCTS—continued																									
Agricultural implements—Con.																									
381	Tractor plow	1913-37	F	F	D	D	D	O		M	U	1301	0	I	8.4	3	100.0	100.0	100.0	100.0	116.9				
382	1-horse plow	1913-37	F	F	D	D	D	O		M	U	1301	6	II	21.7	5	101.6	100.0	88.3	120.0					
383	2-horse plow	1913-37	F	F	D	D	D	O		M	U	1301	5	II	13.3	4	105.5	100.0	83.9	94.4					
384	Pump	1926-38	F	F	D	D	D	O		M	U	1309	5	II	20.4	5	110.4	100.0	78.6	98.1					
385	Hand rake	1926-38	F	F	D	D	D	O		M	U	1125	4	I	9.4	3	100.0	100.0	90.8	100.0					
386	Self-dump rake	1913-37	F	F	D	D	D	O		M	U	1301	1	I	10.3	3	105.5	100.0	100.0	120.6					
387	Self-delivery rake	1913-37	F	F	D	D	D	O		M	U	1301	4	I	14.0	4	102.0	100.0	94.8	117.6					
388	Cream separator	1913-37	F	F	D	D	D	O		M	U	1305	5	II	9.7	3	98.4	100.0	91.9	103.7					
389	Corn sheller	1913-37	F	F	D	D	D	O		M	U	1301	0	I	17.8	5	100.0	100.0	100.0	135.0					
390	Shovels	1913-38	F	F	D	D	D	O	N	M	U	1125	5	II	9.7	3	93.9	100.0	91.7	102.8					
391	Spades	1926-38	F	F	D	D	D	O		M	U	1125	3	I	8.0	3	100.0	100.0	115.0	145.9					
392	Manure spreader	1913-37	F	F	D	D	D	O		M	U	1301	2	I	11.2	3	100.0	100.0	95.4	109.0					
393	Grain threshers	1926-37	F	F	D	D	D	O		M	U	1301	1	I	7.0	2	107.4	100.0	95.3	104.6					
394	Tractor, 10-20 horsepower	1913-37	F	F	D	D	D	O		M	U	1301	1	I	14.2	4	100.0	100.0	88.6	105.5					
395	Tractor, 15-30 horsepower	1926-37	F	F	D	D	D	O		M	U	1301	5	II	15.7	4	100.0	100.0	74.2	79.8					
396	Wagon, 2-horse	1913-37	F	F	D	D	D	O		M	U	1404	6	II	13.0	4	100.0	100.0	86.7	99.9					
397	Windmill	1926-38	F	F	D	D	D	O		M	U	1304	6	II	13.0	4	104.4	100.0	91.1	108.1					
Iron and steel																									
398	Angle bars	1914-38	M	F	D	D	D	P	O	N	M	D	S	1112	2	I	1.4	2	100.0	100.0	99.0	100.0			
399	Angers	1913-38	M	F	D	D	D	P	O	N	M	D	D	1103	0	I	0.0	0	101.6	100.0	80.9	95.6			
400	Axes	1926-38	M	F	D	D	D	P	O	N	M	D	D	1103	6	II	16.9	4	100.0	100.0	80.9	95.6			
401	Bar iron, Chicago	1925-38	M	F	D	D	D	P	O	N	M	D	D	1112	28	VI	26.4	6	98.5	100.0	81.3	115.3			
402	Bar iron, Pittsburgh	1913-38	M	F	D	D	D	P	O	N	M	D	D	1112	4	I	6.6	2	100.0	100.0	100.0	101.1			
403	Reinforcing bars	1913-38	M	F	D	D	D	P	O	N	M	D	D	1112	39	VII	33.2	8	98.5	100.0	77.0	120.3			
404	Mechanical bars	1913-38	M	F	D	D	D	P	O	N	M	D	D	1112	38	VII	33.2	8	103.7	100.0	82.0	125.1			
405	Steel sheet bars	1913-38	M	F	D	D	D	P	O	N	M	D	D	1112	29	VI	27.5	7	102.9	100.0	74.6	104.2			
406	Cold finished bars	1919-38	M	F	D	D	D	P	O	N	M	D	D	1112	36	VII	32.8	7	108.3	100.0	79.7	125.0			
407	Steel barrels	1926-38	M	F	D	D	D	P	O	N	M	D	D	1121	9	III	25.6	6	101.7	100.0	77.8	106.7			
408	Steel bullets	1913-38	M	F	D	D	D	P	O	N	M	D	D	1112	28	VI	26.0	6	101.0	100.0	76.6	105.3			
409	Boiler tubes	1926-38	M	F	D	D	D	P	O	N	M	D	D	1119	2	96	1.4	2	96.4	100.0	102.3	107.4			
410	Machine bolts	1926-38	M	F	D	D	D	P	O	N	M	D	D	1101	13	IV	22.6	5	89.0	100.0	81.8	108.9			
411	Flow bolts	1925-38	M	F	D	D	D	P	O	N	M	D	D	1101	17	V	26.2	6	92.4	100.0	70.0	92.3			
412	Stove bolts	1926-38	M	F	D	D	D	P	O	N	M	D	D	1101	17	V	22.6	6	100.5	100.0	82.4	116.2			
413	Truck bolts	1914-38	M	F	D	D	D	P	O	N	M	D	D	1101	15	IV	15.2	4	108.1	100.0	89.7	106.9			
414	Butts (hinges)	1913-38	M	F	D	D	D	P	O	N	M	D	D	1109	29	VI	18.2	5	103.2	100.0	88.1	112.7			
415	Garbage cans	1913-38	M	F	D	D	D	P	O	N	M	D	D	1123	6	II	2.0	6	101.7	100.0	91.9	87.7			
416	Malleable castings	1926-38	M	F	D	D	D	P	O	N	M	D	D	1122	24	VI	14.0	4	121.2	100.0	77.6	83.2			
417	Chisels	1913-38	M	F	D	D	D	P	O	N	M	D	D	1103	2	I	1.8	2	100.0	100.0	100.0	103.0			
418	Files	1913-38	M	F	D	D	D	P	O	N	M	D	D	1105	1	I	5.5	2	100.0	100.0	100.0	101.0			
419	Hammers	1926-38	M	F	D	D	D	P	O	N	M	D	D	1125	7	II	19.3	5	100.0	100.0	70.2	87.7			
420	Hatchets	1926-38	M	F	D	D	D	P	O	N	M	D	D	1103	7	II	19.3	5	100.0	100.0	81.9	102.4			
421	Corn knives	1926-38	M	F	D	D	D	P	O	N	M	D	D	1103	3	I	9.4	3	100.0	100.0	99.7	118.1			
422	Door knobs	1913-38	M	F	D	D	D	P	O	N	M	D	D	1109	16	IV	25.8	6	91.9	100.0	59.2	65.9			
423	Mortise locks	1913-38	M	F	D	D	D	P	O	N	M	D	D	1109	19	V	11.2	3	87.3	100.0	74.5	71.4			
424	Wire nails	1913-38	M	F	D	D	D	P	O	N	M	D	D	1113	41	VII	25.2	6	103.1	100.0	76.8	103.9			
425	Mesabi ore	1913-38	R	R	R	D	D	P	O	N	M	D	D	1110	2	I	3.5	2	95.8	100.0	101.3	109.6			
426	Non-Bessemer ore	1913-38	R	R	R	D	D	P	O	N	M	D	D	1110	40	VII	31.4	7	102.5	100.0	80.8	124.4			
427	Pig iron	1913-38	R	R	R	D	D	P	O	N	M	D	D	1110	48	VII	31.4	7	102.5	100.0	80.8	124.4			
428	Pig iron, basic	1913-38	R	R	R	D	D	P	O	N	M	D	D	1110	48	VII	31.4	7	102.5	100.0	80.8	124.4			
429	Pig iron, Bessemer	1913-38	R	R	R	D	D	P	O	N	M	D	D	1110	48	VII	31.4	7	102.5	100.0	80.8	124.4			
430	Ferromanganese	1913-38	R	R	R	D	D	P	O	N	M	D	D	1110	20	V	21.5	7	90.7	100.0	67.9	92.8			
431	Foundry iron, Pittsburgh	1913-38	R	R	R	D	D	P	O	N	M	D	D	1110	35	VII	41.6	9	139.9	100.0	73.0	129.1			
432	Foundry iron, Birmingham	1913-38	R	R	R	D	D	P	O	N	M	D	D	1110	35	VII	41.6	9	139.9	100.0	73.0	129.1			
433	Malleable iron	1913-38	R	R	R	D	D	P	O	N	M	D	D	1110	35	VII	41.6	9	139.9	100.0	73.0	129.1			
434	Spiegeleisen	1913-38	R	R	R	D	D	P	O	N	M	D	D	1110	29	VI	19.2	5	104.0	100.0	78.8	96.0			
435	Cast iron pipe	1913-38	R	R	R	D	D	P	O	N	M	D	D	1102	62	VIII	50.7	10	140.1	100.0	70.3	142.0			
436	Black steel pipe	1913-38	R	R	R	D	D	P	O	N	M	D	D	1128	9	III	4.2	2	100.0	100.0	92.7	93.9			
437	Galvanized pipe	1913-38	R	R	R	D	D	P	O	N	M	D	D	1128	9	III	4.2	2	100.0	100.0	92.7	93.9			
438	Flanges, jack	1913-38	R	R	R	D	D	P	O	N	M	D	D	1108	7	II	26.1	6	100.0	100.0	69.2	90.6			
439	Steel plates	1913-38	R	R	R	D	D	P	O	N	M	D	D	1112	40	VII	25.7	6	97.4	100.0	81.8	115.0			
440	Steel rails	1913-38	R	R	R	D	D	P	O	N	M	D	D	1112	4	I	1.1	1	100.0	100.0	98.6	97.4			
441	Rivets, large	1926-38	R	R	R	D	D	P	O	N	M	D	D	1101	30	VI	34.4	8	110.1	100.0	72.3	115.4			
442	Rivets, small	1926-38	R	R	R	D	D	P	O	N	M	D	D	1101	30	VI	34.4	8	110.1	100.0	72.3	115.4			
443	Wire rods	1913-38	R	R	R	D	D	P	O	N	M	D	D	1112	24	VI	16.6	4	108.5	100.0	89.2	111.1			
444	Crosscut saws	1913-38	M	F	F	D	D	P	O	N	M	D	D	1116	7	II	3.0	2	101.2	100.0	96.0	98.9			
445	Hand saws	1913-38	M	F	F	D	D	P	O	N	M	D	D	1116	6	II	3.0	2	101.2	100.0	96.0	98.9			
446	Stocks	1913-38	R	R	R	D	D	P	O	N	M	D	D	1112</											

TABLE I.—Tentative price classification—Continued

B. L. S. code number (1)	Name of commodity (2)	Price data available (3)	Fabrication			Durability			Use, N. B. E. R. I (10)	Clothing, food, and other, N. R. C. (11)	Source (12)	Crop, animal, forest, or mineral, N. B. E. R. (13)	Agriculture, manufacturing, mining, forestry, and fishing, N. R. C. (14)	Product differentiation, unique, differentiated or standard, N. R. C. (15)	Census industry classification (16)	Price flexibility		Price indexes				
			Raw or manufactured, N. B. E. R. (4)	Raw, semi-finished or finished (5)		Durable, nondurable, B. L. S. (7)	Durable, semi-durable, non-durable (8)									Frequency of change in 95 changes (17)	Sensitivity, N. R. C. (19)	1929=100				
				B. L. S. (5)	N. R. C. (6)		N. B. E. R. (8)	N. R. C. (9)										1926	1929	1932	1937	
VI. METALS AND METAL PRODUCTS—continued																						
Iron and steel—Continued																						
457	Annealed wire	1913-38	M	F	F	D	D	D	P	O	O	M	M		1127	Included in 457c.	91 III 39 VII	16.9 29.8	4	100.0	100.0	88.5 110.8 76.3 112.2
458	Barbed galvanized wire	1913-38	M	F	F	D	D	D	P	O	O	M	M		1127							
459	Galvanized wire	1913-38	M	F	F	D	D	D	P	O	O	M	M		1127							
460	Woven fence wire	1913-38	M	F	F	D	D	D	P	O	O	M	M		1127							
461	Wood screws	1913-38	M	F	F	D	D	D	P	O	O	M	M		1117							
Motor vehicles																						
462c	Passenger cars	1923-38		F	F	D	D	D		O		M			1408	Discarded—Items not comparable year to year.						
462	Buick	1923-38		F	F	D	D	D		O		M			1408							
463	Cadillac	1923-38		F	F	D	D	D		O		M			1408							
464	Chevrolet	1923-38		F	F	D	D	D		O		M			1408							
465	Dodge	1923-38		F	F	D	D	D		O		M			1408	Separate data not available.						
466	Ford	1923-38		F	F	D	D	D		O		M			1408							
467	Packard	1923-38		F	F	D	D	D		O		M			1408							
468	Trucks	1923-38		F	F	D	D	D		O		M			1408							
Nonferrous metals																						
469	Aluminum	1913-38	R			D			D	P	O	Z	M	M	608	Discarded—Items not comparable year to year.						
470	Antimony	1913-38	R			D			D	P	O	Z	M	M	608							
471	Babbitt metal	1926-38		F	F	D	D	D							1212							
472	Copper, electrolytic	1913-38	R			D	D	D	P	O	O	M	M		1215							
473	Lead, soft	1913-38	R			D	D	D	P	O	O	M	M		1216	Discarded—Items not comparable year to year.						
474	Nickel, cathode	1926-38	R			D	D	D	P	O	O	M	M		1216							
475	Lead pipe	1913-38	R			D	D	D	P	O	O	M	M		1212							
476	Mercury	1913-38	M			D	D	D	P	O	O	M	M		1212							
477	Brass rods	1923-38	R			D	D	D	P	O	O	M	M		1212	Discarded—Items not comparable year to year.						
478	Copper rods	1923-38	R			D	D	D	P	O	O	M	M		1212							
479	Brass sheets	1913-38	M			D	D	D	P	O	O	M	M		1212							
480	Copper sheets	1913-38	M			D	D	D	P	O	O	M	M		1212							
481	Zinc sheets	1913-38	M			D	D	D	P	O	O	M	M		1212	Discarded—Items not comparable year to year.						
482	Silver	1913-38	M			D	D	D	P	O	O	M	M		1212							
483	Solder	1926-38	R			D	D	D	P	O	O	M	M		1212							
484	Tin	1913-38	R			D	D	D	P	O	O	M	M		1212							
485	Brass tubes	1923-38		F	F	D	D	D		O		M			1126	Discarded—Items not comparable year to year.						
486	Brass wire	1923-38		F	F	D	D	D		O		M			1126							
487	Copper wire	1913-38	M			D	D	D	P	O	O	M	M		1126							
488	Zinc pig	1913-38	R			D	D	D	P	O	O	M	M		1218							
Plumbing and heating																						
489	Heating boilers	1926-38		F	F	D			D		O		M		1321	Discarded—Items not comparable year to year.						
490	Range boilers	1926-38		F	F	D			D		O		M		1321							
491	Water closets	1926-38		F	F	D			D		O		M		1321							
492	Lavatories	1926-38		F	F	D			D		O		M		1321							
493	Radiation	1926-38		F	F	D			D		O		M		1321	Discarded—Items not comparable year to year.						
494	Sinks	1926-38		F	F	D			D		O		M		1321							
495	Bathtubs	1926-38		F	F	D			D		O		M		1321							
496	Laundry tubs	1926-38		F	F	D			D		O		M		1321							
VII. BUILDING MATERIALS																						
Brick and tile																						
497	Concrete blocks	1926-38		F	F	D	D	D		O		M			1005	Discarded—Items not comparable year to year.						
498	Common brick	1913-38	M			D	D	D	P	O	O	M	M		1004							
499	Red brick	1926-38	M			D	D	D	P	O	O	M	M		1004							
500	Face brick	1926-38	M			D	D	D	P	O	O	M	M		1004							
501	Paving brick	1913-38	M			D	D	D	P	O	O	M	M		1004	Not included in Bureau of Labor Statistics index.						
502	Sand line brick	1913-38	M			D	D	D	P	O	O	M	M		1004							
503	Silica brick	1926-38	M			D	D	D	P	O	O	M	M		1004							
504	Drain tile	1915-38	M			D	D	D	P	O	O	M	M		1004							
505	Floor tile	1926-38	M			D	D	D	P	O	O	M	M		1004	Discarded—Items not comparable year to year.						
506	Hollow building tile	1913-38	M			D	D	D	P	O	O	M	M		1004							
507	Roofing tile	1913-38	M			D	D	D	P	O	O	M	M		1004							
508	Wall tile	1926-38	M			D	D	D	P	O	O	M	M		1004							
Cement																						
509	Portland cement	1913-38	M			D	D	D	P	O	O	M	M		1002	Discarded—Items not comparable year to year.						
	Buffington cement		M			D	D	D	P	O	O	M	M		1002							
	Northampton cement		M			D	D	D	P	O	O	M	M		1002							
	Lumber																					
510	Douglas fir lath	1926-38	M			D			D	P	O	Z	F	F	311	Discarded—Items not comparable year to year.						
511	Yellow pine lath	1913-38	M			D			D	P	O	Z	F	F	311							
512	Red cedar	1926-38	M			D			D	P	O	Z	F	F	311							
513	Chestnut	1926-38	M			D			D	P	O	Z	F	F	311							
514	Cypress	1926-38	M			D			D	P	O	Z	F	F	311							

TABLE I.—Tentative price classification—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication			Durability			Use, N. B. E. R. 1	Clothing, food, and other, N. R. C.	Source	Farm, nonfarm, N. B. E. R. C.	Crop, animal, forest, or mineral, N. R. E. R.	Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.	Preheat, differentiation, unigue, differentiated or standard, N. R. C.	Census industry classification	Price flexibility		Price indexes							
			Price data available	Raw or manufactured, N. B. E. R.	Raw, semifinished or finished, N. B. C.	Durable, nondurable, B. L. S.	Durable, semidurable, nondurable, N. B. E. R.	N. R. C.									Frequency of change 1926-33, N. R. C.	Sensitivity 1926-33, N. R. C.	1929=100							
																			Changes in 94 changes	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)			
VII. BUILDING MATERIALS—CON																										
Lumber—Continued																										
515	Douglas fir, 1c	1913-38	M	F		D	D	P	O					F		311	IX	55.8	10	90.1	100.0	51.4	114.5			
516	Douglas fir, B	1913-38	M	F		D	D	P	O					F		311	IX	53.4	10	100.3	100.0	46.9	100.5			
517	Gum lumber	1913-38	M	F		D	D	P	O					F		59	VIII	45.2	9	97.4	100.0	52.0	94.3			
518	Hemlock	1913-38	M	F		D	D	P	O					F		311	39	VII	20.1	5	94.4	100.0	77.2	94.6		
519	Maple	1913-38	M	F		D	D	P	O					F		311	36	VII	47.0	9	101.9	100.0	52.5	99.0		
520	Oak	1913-38	M	F		D	D	P	O					F		311	37	VII	23.9	6	114.5	100.0	72.3	92.4		
521	White Pine	1913-38	M	F		D	D	P	O					F		311	38	VII	17.3	4	103.3	100.0	80.3	95.2		
522	Yellow pine flooring	1913-38	M	F		D	D	P	O					F		314	92	IX	58.6	10	120.3	100.0	49.6	116.5		
523	Yellow pine timbers	1930-35	M	F		D	D	P	O					F		311	Discarded—Inadequate data.									
524	Ponderosa pine	1913-38	M	F		D	D	P	O					F		311	39	VII	38.6	8	98.4	100.0	64.5	106.2		
525	Poplar	1913-38	M	F		D	D	P	O					F		311	31	VII	30.9	7	107.4	100.0	66.1	94.0		
526	Redwood	1926-38	M	F		D	D	P	O					F		311	9	III	28.6	3	98.3	100.0	70.6	98.3		
527	Spruce	1913-38	M	F		D	D	P	O					F		311	76	VII	34.8	8	100.1	100.0	64.2	98.1		
528	Cedar shingles	1913-38	M	F		D	D	P	O					F		311	86	IX	44.6	9	90.7	100.0	60.8	114.9		
529	Cypress shingles	1913-38	M	F		D	D	P	O					F		311	22	V	46.0	9	101.3	100.0	57.6	107.3		
Paint and paint materials																										
530	Enamel	1926-38		F	F					O				M	D	626	5	II	8.3	3	100.0	100.0	83.3	83.2		
531	Inside flat paint	1926-38		F	F					O				M	D	626	12	IV	2.7	2	114.9	100.0	91.6	88.6		
532	Outside white paint	1926-38		F	F					O				M	D	626	10	III	17.5	4	100.7	100.0	78.8	92.6		
533	Porch and deck paint	1926-38		F	F					O				M	D	626	10	III	11.6	3	96.7	100.0	82.5	88.3		
534	Roof and barn paint	1926-38		F	F					O				M	D	626	6	II	11.3	3	100.0	100.0	86.0	94.6		
535	Floor varnish	1926-38		F	F					O				M	D	626	6	II	11.4	3	100.0	100.0	86.2	95.3		
536	Barytes	1913-38		R	R					O				M	D	608	1	I	—	8	111.5	100.0	100.0	98.3		
537	Butyl acetate	1926-38		F	F					O				M	D	608	4	VII	3.8	2	115.3	100.0	75.9	69.4		
538	Bone black	1913-38		F	F					O				M	D	606	0	I	7.2	2	100.0	100.0	100.0	114.4		
539	Carbon	1926-38		F	F					O				M	D	606	18	V	38.7	8	102.8	100.0	36.1	46.6		
540	Iron oxide, black	1926-38		F	F					O				M	D	626	4	I	11.3	3	105.0	100.0	77.5	77.6		
541	Lamp black	1913-38		F	F					O				M	D	606	7	II	—	6	105.7	100.0	85.8	70.5		
542	Prussian blue	1926-38		F	F					O				M	D	626	10	III	1.8	2	94.4	100.0	102.1	107.9		
543	Chrome green	1926-38		F	F					O				M	D	626	6	II	1.0	2	102.9	100.0	85.3	88.1		
544	Chrome yellow	1926-38		F	F					O				M	D	626	21	V	1.6	2	102.9	100.0	94.5	91.0		
545	Ethyl acetate	1926-38		F	F					O				M	D	608	29	VI	8.7	3	68.0	100.0	66.3	50.0		
546	Copal gum	1913-38		F	F					O				M	D	Import	29	VI	24.0	6	115.2	100.0	72.1	92.2		
547	Red lead	1913-38		F	F					O				M	D	626	61	VIII	30.9	7	114.0	100.0	65.5	92.8		
548	White lead	1913-38	M	F	D	D	P	O						M	D	626	15	IV	9.3	3	110.7	100.0	87.2	93.0		
549	Litharge	1913-38	M	F	D	D	P	O						M	D	626	63	VIII	34.3	8	120.9	100.0	61.7	92.0		
550	Lithopone	1913-38	M	F	D	D	P	O						M	D	626	3	I	6.7	2	104.4	100.0	85.7	84.8		
551	Chinawood oil	1913-38		F	F					O				M	D	Import	85	IX	61.8	10	95.4	100.0	42.9	109.3		
552	Linseed oil	1913-38	M	F	D	D	P	O						M	D	623	92	IX	42.4	9	91.0	100.0	51.5	87.9		
553	Putty	1913-38		F	F					O				M	D	626	17	V	27.2	6	27.2	100.0	65.1	84.1		
554	Rosin, grade B	1913-38		F	F					O				M	D	317	94	X-A	61.9	10	148.4	100.0	32.5	102.8		
555	Rosin, grade H	1913-38		F	F					O				M	D	317	87	IX	40.6	9	82.0	100.0	24.8	30.9		
556	Shellac	1913-38	M	F	D	D	P	O						M	D	317	95	Xb	6.7	2	169.2	100.0	78.5	70.4		
557	Turpentine, southern	1913-38	M	F	D	D	P	O						M	D	317	Not included in Bureau of Labor Statistics index.									
558	Turpentine, Savannah	1913-38	M	F	D	D	P	O						M	D	317	Not included in Bureau of Labor Statistics index.									
559	Whiting	1926-38		F	F					O				M	D	626	1	I	3.7	2	125.0	100.0	100.0	107.4		
560	Zinc oxide	1913-38	M	F	D	D	P	O						M	D	626	10	III	9.3	3	112.1	100.0	86.0	90.6		
Other building materials																										
559	Asphalt	1918-38	M	F	F	S	D	D	P	O	N	M	M	M	D	705	3	I	16.7	4	100.0	100.0	83.3	100.0		
560	Plasterboard	1926-38		F	D		D	D	P	O				M	D	1020	1	I	—	6	112.2	100.0	105.3	93.4		
561	Wallboard	1926-38		F	D		D	D	P	O				M	D	1020	9	III	5.6	2	130.8	100.0	90.2	91.7		
562	Door	1926-38		F	D		D	D	P	O				M	D	314	14	IV	27.8	7	98.4	100.0	77.9	111.3		
563	Doorframes	1926-38		F	D		D	D	P	O				M	D	314	7	II	15.7	4	101.9	100.0	83.5	98.4		
564	Window frames	1926-38		F	D		D	D	P	O				M	D	314	8	III	15.7	4	104.0	100.0	83.6	98.4		
565	Plate glass	1913-38	M	F		D	D	P	O					M	D	1008	6	II	—	1	118.8	100.0	94.5	76.7		
566	Plate glass 3-5 square feet	1913-38	M	F		D	D	P	O					M	D	1008	Included in 565c.									
567	Plate glass 5-10 square feet	1913-38	M	F		D	D	P	O					M	D	1008	13	IV	23.0	5	91.9	100.0	64.7	75.4		
568	Window glass A	1913-38	M	F		D	D	P	O					M	D	1008	Included in 567c.									
569	Window glass B	1913-38	M	F		D	D	P	O					M	D	1008	13	IV	12.6	3	103.8	100.0	85.3	97.8		
570	Quiklime	1913-38	M	F		D	D	P	O					M	D	1013	34	VI	7.8	3	112.5	100.0	86.8	89.2		
571	Slaked lime	1913-38	M	F		D	D	P	O					M	D	1013	14	IV	11.8	3	103.1	100.0	85.5	94.6		
572	Sewer pipe	1913-38	M	F		D	D	P	O					M	D	1005	13	IV	13.8	4	132.1	100.0	81.9	91.1		
573	Plaster	1926-38		F	F		D	D	P	O				M	D	1020	8	III	—	20.6	1	141.2	100.0	158.9	176.6	
574	Prepared roofing	1926-38		F	F		D	D	P	O				M	D	1638	37	VII	13.0	4	130.7	100.0	94.1	114.2		
575	Individual prepared shingles	1926-38		F	F		D	D	P	O				M	D	1638	Included in 574c.									
576	Prepared roofing, medium	1926-38		F	F		D	D	P	O				M	D	1638	41	VII	13.6	4	144.9	100.0	107.4	142.0		
577	Prepared roofing, slate	1926-38		F	F		D	D	P	O				M	D	1638	6	II	18.0	5	100.0	100.0	62.6	61.1		
578	Strip shingles	1926-38		F	F		D	D	P	O				M	D	1638	14	IV	13.6	4	108.3	100.0	92.0	111.1		
579	Slate	1913-38	M	F	R	R	R	D	P	O	N	M	M	M	D	314	12	IV	36.8	8	100.0	100.0	70.6	114.1		
580	Window sash	1926-38		F	S		D	D	P	O				M	D	314	7	II	3.1	3	93.3	100.0	92.3	87.7		
581	Stone, crushed	1913-38	R	R	S		N	D	P	O				M	D	623	22	V	29.6	7	130.7	100.0	71.5	102.0		
582	Tar	1926-38		F	S					O				M	D	623										

TABLE I.—Tentative price classification—Continued

B. L. S. code number (1)	Name of commodity (2)	Price data available (3)	Fabrication			Durability			Use, N. B. E. R. (10)	Clothing, food, and other, N. R. C. (11)	Source (12)	Crop, animal, forest or mineral, N. R. E. (13)	Agriculture, manufacturing, mining, forestry, and fishing, N. R. C. (14)	Product differentiation, unique, differentiated or standard, N. R. C. (15)	Census industry classification (16)	Price flexibility		Price indexes 1929=100				
			Raw of manufactured, N. B. E. R. (4)	Raw, semifinished or finished (5)	N. R. C. (6)	Durable, nondurable, B. L. S. (7)	Durable, semi-durable, non-durable (8)	Frequency of change 1929-33 N. R. C. (17)								Sensitivity N. R. C. (18)	1926 (19)	1929 (20)	1932 (21)	1937 (22)		
VIII. CHEMICALS AND DRUGS																						
Chemicals																						
583	Acetic acid.	1913-38		F					O		M			608	21	VI	14.1	4	84.0	100.0	67.1	62.4
584	Boric acid.	1913-38		F					O		M			608	11	III	11.6	4	130.2	100.0	85.0	93.2
585	Carbon dioxide, liquid.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
586	Muriatic acid.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
587	Nitric acid.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
588	Oleic acid.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
589	Phosphoric acid.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
590	Salicylic acid.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
591	Stearic acid.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
592	Sulphuric acid.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
593	Denatured alcohol.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
594	Wood alcohol.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
595	Aluminum sulphate.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
596	Anhydrous ammonia.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
597	Aqua ammonia.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
598	Anilin oil.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
599	Arsenic, white.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
600	Baking powder, 1 pound.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
601	Baking powder, 10 pounds.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
602	Benzene.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
603	Bleaching powder.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
604	Borax.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
605	Calcium acetate.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
606	Calcium arsenate.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
607	Calcium carbide.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
608	Calcium chloride.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
609	Coal tar, black.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
610	Coal tar, brown.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
611	Coal tar, indigo.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
612	Coal tar, nigrosine.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
613	Copperas.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
614	Copper sulphate.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
615	Cresote.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
616	Formaldehyde.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
617	Logwood extract.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
618	Naphthalene.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
619	Pine oil.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
620	Caustic potash.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
621	Quebracho extract.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
622	Sul soda.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
623	Salt cake.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
624	Granulated salt.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
625	Soda ash.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
626	Sodium bicarbonate.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
627	Caustic soda.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
628	Sodium silicate.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
629	Sodium sulphide.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
630	Crude sulphur.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
631	Tallow, packers.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
632	Toluene.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
633	Palm kernel oil.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
634	Palm niger oil.	1913-38		F					O		M			608	0	I	0	1	100.0	100.0	100.0	100.0
Drugs and pharmaceuticals																						
635	Citric acid.	1913-38		F					O		M			608	24	VI	9.6	3	98.3	100.0	67.2	53.7
636	Tartaric acid.	1913-38		F					O		M			608	46	V	20.6	5	76.2	100.0	69.2	61.6
637	Grain alcohol.	1913-38		F					O		M			608	22	VI	42.2	9	177.0	100.0	91.0	169.4
638	Caffeine.	1913-38		F					O		M			608	21	VI	9.8	3	119.6	100.0	80.5	89.7
639	Camphor.	1913-38		F					O		M			608	27	IX	15.2	6	120.2	100.0	67.1	89.1
640	Castor oil.	1913-38		F					O		M			608	15	IX	13.6	2	96.1	100.0	74.7	75.4
641	Chlorine, liquid.	1913-38		F					O		M			608	18	V	29.3	7	135.3	100.0	88.4	106.2
642	Chloroform.	1913-38		F					O		M			608	14	VI	14.7	2	106.2	100.0	78.4	106.2
643	Cream of tartar.	1913-38		F					O		M			608	6	II	4.1	1	106.2	100.0	88.4	106.2
644	Epsom salts.	1913-38		F					O		M			608	48	VII	56.0	10	150.8	100.0	103.2	150.5
645	Glycerin, chemically pure.	1913-38		F					O		M			608	14	IX	10.8	1	100.0	100.0	70.7	32.3
646	Iodine.	1913-38		F					O		M			608	26	IX	26.6	6	100.8	100.0	55.8	61.1
647	Menthol.	1913-38		F					O		M			608	1	I	1.1	1	56.6	100.0	65.5	92.5
648	Opium.	1913-38		F					O		M			608	1	I	6.0	2	99.5	100.0	106.7	99.4
649	Hydrogen peroxide.	1913-38		F					O		M			608	1	I	4.0	1	143.3	100.0	103.7	99.4
650	Phenol.	1913-38		F					O		M			608	22	V	18.3	3	107.2	100.0	82.8	28.4
651	Potassium iodide.	1913-38		F					O		M			608	15	IX	17.2	1	107.0	100.0	106.6	132.4
652	Quinine sulphate.	1913-38		F					O		M			608	17	V	17.2	2	100.0	100.0	82.8	65.3
653	Sodium phosphate.	1913-38		F					O		M			608	13	IX	3.2	2	89.8	100.0	83.7	73.7
654	Strychnine.	1913-38		F					O		M			608	15	IX	4.8	2	101.4	100.0	84.7	78.4
Fertilizer materials																						
655	Ammonium sulphate.	1913-38		F					O		M			614	70	VIII	36.7	8	118.8	100.0	10.3	54.0
656	Bones, ground.	1913-38		F					O		M			614	33	V	33.8	3	100.0	100.0	59.7	7.3
657	Phosphate rock.	1913-38		F					O		M			614	10	III	20.2	1	101.3	100.0	100.0	59.7
658	Kaolin, 20 percent.	1913-38		F					O		M			614	9	III	5.6	2	91.5	100.0	101.4	113.9

TABLE I.—Tentative price classification—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication		Durability				Source	Census industry classification	Price flexibility		Price indexes											
			Raw or manufactured, N. R. C.	Raw, semi-finished or finished	Durable, non-durable, B. L. S.	Durable, semi-durable, non-durable	Frequency of change 1929-33 N. R. C.	Sensitivity N. R. C.			1929=100													
											1926	1929	1932	1937										
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	
VIII. CHEMICALS AND DRUGS—continued																								
Fertilizer materials—Continued																								
660	Manure salts, 20 percent.	1913-38		F	F										614	10	III	1.5	2	94.5	100.0	98.2	99.4	
661	Muriate of potash, 80 percent.	1913-38	M	F	F										614	6	II	13.3	1	95.9	100.0	101.4	76.2	
662	Sulphate of potash, 90 percent.	1913-38		F	F										614	10	III	13.3	1	96.7	100.0	100.3	78.0	
663	Sodium nitrate	1913-38	R	R	R										614	60	VII	9.2	3	118.2	100.0	73.5	63.4	
664	Superphosphate	1913-38	M	F	F										614	36	VII	17.2	12	98.6	100.0	74.8	83.9	
665	Tankage.	1913-38	R	R	R										123	57	VIII	63.8	10	95.9	100.0	30.3	88.2	
Fertilizer, mixed																								
666	Fertilizer.	1913-38	M	F	F										614	42	VII	14.8	4	103.7	100.0	71.9	73.4	
666	Fertilizer, Middle Atlantic.	1913-38		F	F										614	Included in 666.								
667	Fertilizer, Midwest.	1913-38		F	F										614	Included in 666.								
668	Fertilizer, northeast.	1913-38		F	F										614	Included in 666.								
669	Fertilizer, South Atlantic.	1913-38		F	F										614	Included in 666.								
670	Fertilizer, South Atlantic.	1913-38		F	F										614	Included in 666.								
671	Fertilizer, southwest.	1913-38	M	F	F										614	Included in 666.								
IX. HOUSE FURNISHING GOODS																								
Furnishings																								
672	Blankets, cotton colored.	1913-38	M	F	F										203	21	V	36.2	8	113.3	100.0	55.2	82.9	
673	Blankets, cotton warp.	1926-38		F	F										203	15	IV	38.4	8	113.9	100.0	63.3	103.3	
674	Blankets, wool.	1913-38		F	F										212	15	IV	34.9	8	101.2	100.0	70.9	111.6	
675	Comforters.	1926-38		F	F										218	16	IV	28.7	7	133.3	100.0	65.3	88.0	
676	Carvers.	1913-38	M	F	F										1103	0	I	4.7	2	100.0	100.0	100.0	100.0	
677	Knives and forks.	1913-38		F	F										213	2	I	3	1	100.0	100.0	96.0	91.4	
678	Axminster carpets.	1913-38	M	F	F										201	1	II	28.1	7	108.2	100.0	70.2	96.6	
679	Brussels carpets.	1913-38		F	F										201	6	II	22.8	5	103.0	100.0	81.7	108.9	
680	Wilton carpets.	1913-38	M	F	F										201	30	II	24.6	6	111.0	100.0	86.9	110.4	
681	Felt-hose printed carpets.	1926-38		F	F										222	3	II	9.5	3	92.7	100.0	83.8	86.6	
682	Felt-hose rugs.	1926-38		F	F										222	9	III	23.2	5	126.0	100.0	62.5	71.4	
683	Linoleum, inlaid.	1926-38		F	F										222	13	IV	23.4	6	90.6	100.0	69.7	108.9	
684	Linoleum, plain.	1926-38		F	F										222	15	IV	15.4	4	108.2	100.0	86.7	104.2	
685	Electric irons, automatic.	1926-38		F	F										1303	7	II	17.2	4	112.9	100.0	65.8	66.0	
686	Electric irons, plain.	1926-38		F	F										1303	8	III	9.8	3	152.0	100.0	73.8	81.1	
687	Electric irons.	1926-38		F	F										1315	6	II	6.0	2	100.0	100.0	87.9	87.9	
688	Oilcloth, shelf.	1926-38		F	F										220	17	V	24.2	6	99.1	100.0	69.3	87.1	
689	Oilcloth, table.	1926-38		F	F										220	17	V	24.2	6	99.1	100.0	69.3	87.1	
690	Oilcloth, wall.	1926-38		F	F										220	17	V	24.2	6	99.1	100.0	69.3	87.1	
691	Pails, galvanized iron.	1913-38		F	F										1109	47	VII	39.8	9	102.0	100.0	71.1	121.8	
692	Pillowcases.	1926-38		F	F										218	43	VII	27.4	6	95.7	100.0	60.6	76.1	
693	Sewing machines, electric.	1926-38	M	F	F										1312	5	II	13.0	4	91.7	100.0	78.2	82.4	
694	Sewing machines, treadle.	1913-38	M	F	F										1312	4	I	14.2	4	95.0	100.0	84.9	98.3	
695	Window shades.	1926-38		F	F										1651	14	IV	20.0	5	110.7	100.0	70.7	81.5	
696	Sheets.	1926-38		F	F										218	43	VII	35.0	8	96.6	100.0	52.1	74.1	
697	Coal range.	1913-38	M	F	F										1121	Discarded—Items not comparable, year to year.								
698	Electric range.	1926-38	M	F	F										1303	4	I	9.5	3	117.8	100.0	78.8	76.6	
699	Gas range.	1913-38	M	F	F										1121	Discarded—Items not comparable, year to year.								
700	Oil range.	1913-38	M	F	F										1121	Discarded—Items not comparable, year to year.								
701	Tablecloths.	1926-38		F	F										1017	1	III	28.8	7	103.1	103.0	70.8	99.1	
702	Dinner sets.	1924-38	M	F	F										1017	1	I	21.8	5	105.5	100.0	95.6	134.8	
703	Dinner sets, 3 spray.	1924-38		F	F										1017	Included in 702.								
704	Glass napkins.	1913-38		F	F										1008	3	I	10.0	3	100.0	100.0	100.0	120.0	
705	Glass pitchers.	1913-38	M	F	F										1008	7	II	17.9	5	96.8	100.0	101.7	139.2	
706	Plates, granite.	1913-38		F	F										1017	5	II	5.4	1	116.7	100.0	100.0	89.3	
707	Cups and saucers, granite.	1913-38		F	F										1017	5	II	5.4	1	116.7	100.0	100.0	89.3	
708	Tumblers.	1913-38		F	F										1008	6	II	27.2	6	101.8	100.0	83.3	120.9	
709	Galvanized iron tubs.	1913-38	M	F	F										1109	50	VIII	39.5	9	103.2	100.0	70.3	119.7	
710	Vacuum cleaners.	1924-38		F	F										1303	8	III	4.4	2	124.5	100.0	80.0	68.9	
711	Washing machines.	1926-38		F	F										1315	8	III	13.2	4	137.2	100.0	65.0	56.4	
Furniture																								
712	Metal beds.	1926-38		F	F										309									
713	Wooden beds.	1913-38	M	F	F										309									
714	Bedroom benches.	1913-38		F	F										309									
715	Bedroom chairs.	1913-38	M	F	F										309									
716	Dressers, vanity table.	1913-38	M	F	F										309									
717	Mattresses.	1926-38		F	F										309									
718	Bed springs, coil.	1926-38		F	F										309									
719	Buffets, serving tables.	1913-38	M	F	F										309									
720	Dining room chairs.	1913-38		F	F										309									
721	Dining room tables.	1913-38	M	F	F										309									
722	Kitchen cabinets.	1925-38	M	F	F										309									
723	Kitchen chairs.	1913-38	M	F	F										309									
724	Electric refrigerators.	1932-38	M	F	F										309									
725	Electric tables.	1925-38	M	F	F										309									
726	Living room chairs.	1925-38		F	F										309									
727	Daybeds.	1926-38		F	F										309									
728	Living room tables.	1913-38	M	F	F										309									



TABLE I.—Tentative price classification—Continued

B. L. S. code number (1)	Name of commodity (2)	Price data available (3)	Fabrication			Durability			Source (11)	Census industry classification (16)	Price flexibility				Price indexes								
			Raw or manufactured, N. R. C.	Raw, semifinished or finished	N. R. C.	Durable, nondurable, B. L. S.	Durable, nondurable, B. L. S.	Frequency of change 1929-33, N. R. C.			Sensitivity N. R. C.	Changes in 95 classes	Group number	Index of depression sensitivity	Group number	1929=100							
																1926	1929	1932	1937				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
IX. HOUSE FURNISHING GOODS—continued																							
Furniture—Continued																							
729	Office chairs, side.....	1926-38	F	F	D	D	D	O	M	D	309												
730	Office chairs, swivel.....	1926-38	F	F	D	D	D	O	M	D	309												
731	Flat top desks.....	1926-38	F	F	D	D	D	O	M	D	309												
732	Typewriter desks.....	1926-38	F	F	D	D	D	O	M	D	309												
X. MISCELLANEOUS																							
Automobile tires and tubes																							
733	Balloon tires.....	1926-38	M	F	F	ZZ	ZZ	C	O	N	C	M	D	803									
734	Truck and bus tires.....	1926-38	M	F	F	ZZ	ZZ	C	O	N	C	M	D	803									
735	Inner tubes.....	1926-38	M	F	F	ZZ	ZZ	C	O	N	C	M	D	803									
Cattle feed																							
736	Brn.....	1913-38	F	ZZ	ZZ	ZZ	ZZ	O	A	ZZ	ZZ			113		95	X-b	61.6	10	86.8	100.0	37.2	97.7
737	Cottonseed meal.....	1913-38	F	ZZ	ZZ	ZZ	ZZ	O	A	ZZ	ZZ			622		90	IX	53.8	10	74.1	100.0	64.1	75.8
738	Linseed meal.....	1913-38	F	ZZ	ZZ	ZZ	ZZ	O	A	ZZ	ZZ			623		94	IX	31.6	7	86.6	100.0	53.9	71.1
739	Middlings.....	1913-38	F	ZZ	ZZ	ZZ	ZZ	O	A	ZZ	ZZ			113		94	X-a	65.3	10	84.5	100.0	35.4	101.1
Paper and pulp																							
740	Boxboard, chip.....	1913-37	M	F	ZZ	ZZ	ZZ	C	O	N	F	M	D	467		32	VI	39.2	8	116.1	100.0	70.6	119.6
741	Boxboard, Manila lined.....	1913-37	M	F	ZZ	ZZ	ZZ	C	O	N	F	M	D	467		47	VII	34.0	8	113.0	100.0	76.6	92.1
742	Boxboard, 85-pound liner.....	1913-37	M	F	ZZ	ZZ	ZZ	C	O	N	F	M	D	467		25	VI	31.8	7	115.6	100.0	76.5	94.3
743	Book paper.....	1921-38	M	F	ZZ	ZZ	ZZ	C	O	N	F	M	D	467		11	III	25.6	6	108.7	100.0	76.5	88.35
744	Newsprint paper.....	1926-38	M	F	ZZ	ZZ	ZZ	C	O	N	F	M	D	467		8	III	3.0	2	115.7	100.0	84.2	134.3
745	Tissue paper.....	1921-38	M	F	ZZ	ZZ	ZZ	C	O	N	F	M	D	467		8	III	31.0	7	106.6	100.0	86.1	1.10
746	Wrapping paper.....	1913-38	F	F	ZZ	ZZ	ZZ	M	O	ZZ	C	M	D	467		10	III	0	1	120.9	100.0	100.0	100.1
747	Wood pulp, kraft.....	1926-38	R	ZZ	ZZ	ZZ	ZZ	M	O	ZZ	C	M	D	410		25	VI	38.6	8	111.0	100.0	65.9	108.9
748	Wood pulp, sulphite.....	1913-38	R	ZZ	ZZ	ZZ	ZZ	M	O	ZZ	C	M	D	410		22	V	51.5	10	113.0	100.0	61.9	126.8
749	Wood pulp, mechanical.....	1913-38	R	ZZ	ZZ	ZZ	ZZ	M	O	ZZ	C	M	D	410		24	VI	22.1	5	111.2	100.0	77.5	99.2
750	Wood pulp, soda.....	1921-38	R	ZZ	ZZ	ZZ	ZZ	M	O	ZZ	C	M	D	410		22	V	23.8	6	121.5	100.0	74.3	96.1
Crude rubber																							
751e	Rubber, crude.....	1913-38	R	R	R	ZZ	ZZ	M	O	ZZ	F	A-1	Import		94	X-a	81.8	10	238.1	100.0	18.1	99.8	
751	Rubber, amber.....	1926-38	R	R	R	ZZ	ZZ	M	O	ZZ	F	A-1											
752	Latex crepe.....	1926-38	R	R	R	ZZ	ZZ	M	O	ZZ	F	A-1											
753	Rubber, plantation.....	1913-38	R	R	R	ZZ	ZZ	M	O	ZZ	F	A-1											
Other miscellaneous																							
754	Wooden barrels.....	1926-38	F	F	D	D	D	O	M	D	306			25	VI	19.6	5	98.0	100.0	74.2	87.6		
755	Dry batteries.....	1926-38	F	F	D	D	D	O	M	D	1303			4	I	-2.8	1	103.7	100.0	100.0	94.5		
756	Storage batteries.....	1926-38	F	F	D	D	D	O	M	D	1303			13	IV	12.5	3	123.2	100.0	75.1	75.2		
757	Metal caskets.....	1926-38	F	F	D	D	D	O	M	D	306			6	II	13.2	4	111.3	100.0	82.1	90.6		
758	Wood caskets.....	1926-38	F	F	D	D	D	O	M	D	305			7	II	10.4	3	102.5	100.0	83.7	88.1		
759	Cigar boxes.....	1926-38	F	F	D	D	D	O	M	D	303			4	I	2.1	2	100.0	100.0	87.5	79.2		
760	Matches, regular.....	1926-38	F	F	D	D	D	O	M	D	312			1	I	-10.2	1	131.1	100.0	121.0	121.7		
761	Safety matches.....	1926-38	F	F	D	D	D	O	M	D	312			2	II	-5.6	1	109.9	100.0	118.8	126.4		
762	Plate glass mirrors.....	1926-38	F	F	D	D	D	O	M	D	1016			7	II	72.6	10	100.0	100.0	56.9	139.1		
763	Cylinder oil, Oklahoma.....	1913-38	M	F	ZZ	ZZ	ZZ	M	O	ZZ	M	M	705		51	VIII	17.8	5	67.8	100.0	65.3	66.2	
764	Cylinder oil, Pennsylvania.....	1913-38	M	F	ZZ	ZZ	ZZ	M	O	ZZ	M	M	705		87	IX	26.7	6	74.0	100.0	49.8	53.0	
765	Neutral oil, Gulf.....	1913-38	M	F	ZZ	ZZ	ZZ	M	O	ZZ	M	M	705		59	VIII	22.8	5	126.4	100.0	65.9	75.9	
766	Neutral oil, Pennsylvania.....	1913-38	M	F	ZZ	ZZ	ZZ	M	O	ZZ	M	M	705		85	IX	33.4	8	104.0	100.0	61.1	88.1	
767	Asbestos pipe coverings.....	1926-38	M	F	ZZ	ZZ	ZZ	M	O	ZZ	M	M	705		6	II	21.6	5	108.7	100.0	87.0	117.1	
768	Rubber heels, men's.....	1926-38	F	F	D	D	D	O	M	D	802			12	IV	25.4	6	133.9	100.0	70.0	86.9		
769	Rubber heels, women's.....	1926-38	F	F	D	D	D	O	M	D	802			10	III	18.8	5	134.5	100.0	90.0	118.2		
770	Men's rubbers.....	1926-38	F	F	D	D	D	O	M	D	802			8	III	23.3	6	110.9	100.0	75.6	87.9		
771	Shipping case.....	1926-38	F	F	D	D	D	O	M	D	631			9	I	4.8	2	100.0	100.0	100.0	90.3		
772	Snap chips.....	1926-37	F	F	ZZ	ZZ	ZZ	C	O	F	O	M	D	631		28	VI	45.8	9	129.0	100.0	65.9	125.4
773	Laundry soap, pound.....	1913-37	M	F	ZZ	ZZ	ZZ	C	O	F	O	M	D	631		14	IV	31.6	7	95.1	100.0	58.0	79.3
774	Laundry soap, 100 cakes.....	1913-37	M	F	ZZ	ZZ	ZZ	C	O	F	O	M	D	631		4	I	-1.4	1	100.0	100.0	93.3	83.8
775	Snap powder.....	1926-37	F	F	D	D	D	O	M	D	631			25	VI	47.0	9	110.5	100.0	56.2	106.5		
776	Toilet soap.....	1926-37	F	F	ZZ	ZZ	ZZ	C	O	F	O	M	D	631		1	I	7.3	2	100.0	100.0	93.8	102.2
777	Laundry starch.....	1913-38	M	F	ZZ	ZZ	ZZ	C	O	F	O	M	D	631		19	V	21.1	5	100.9	100.0	79.9	100.0
778	Cigarettes.....	1926-38	F	F	ZZ	ZZ	ZZ	C	O	F	O	M	D	1632		9	III	-10.9	1	104.8	100.0	111.9	102.0
779	Cigars.....	1926-38	F	F	ZZ	ZZ	ZZ	C	O	F	O	M	D	1648		Discarded—Item classified by price							
780	Plug tobacco.....	1913-38	M	F	ZZ	ZZ	ZZ	C	O	F	O	M	D	1647		2	I	0	1	100.0	100.0	96.1	2.25
781	Smoking tobacco.....	1913-38	M	F	ZZ	ZZ	ZZ	C	O	F	O	M	D	1647		2	I	19.2	5	109.0	100.0	61.5	9.61
782	Snuff.....	1926-37	F	F	ZZ	ZZ	ZZ	C	O	F	O	M	D	1647		Discarded—Inadequate data.							
783	Paraffin.....	1926-38	S	F	ZZ	ZZ	ZZ	O	M	S	705			84	IX	39.4	8	144.9	100.0	54.6	8.8		

1 P: Goods entering into capital equipment; M: Producer goods destined for human consumption; C: Consumer goods. The class Producers' Goods as given in *Economic Tendencies* is merely the sum of P and M.

2 Slight change in specification, January 1938.

Discarded—Items not comparable year to year.

(Continued from page 187)

(toluene); 650 (phenol); and 590 (salicylic acid). At the outbreak of the war Germany was the only country having a developed technique for the production of these dyestuffs; the chief source of the world's potassium salts was the salt beds of Stassfurt; the remaining three items were imported in considerable volume before the war, and their position as raw materials for explosives and munitions greatly increased the demand. These items showed an increase in price of over 500 percent during the war period. The effect of the elimination of these items is particularly noticeable in group III where most of them occur.

TABLE II.—Frequency groups  
(Prices grouped according to frequency of change)

Code No.	Description	Sensitivity group	Code No.	Description	Sensitivity group
GROUP I (10-4 CHANGES)					
97	Corn flakes	1	4256	Iron ore	2
99	Wheat cereal	1	439	Steel rails	2
154	Ginger ale	1	456	Vises	2
156	Sodas	2	474	Nickel	2
226	Gloves, men's, mocha	2	497	Concrete blocks	2
231	Collars, men's, soft	1	536	Barytes, western	2
232	Collars, men's, stiff	1	538	Bone black	2
241	Men's dress shirts	1	540	Iron oxide	2
293	Underwear, men's	2	550	Lithopone, domestic	2
367	Grain binder	1	557	Whiting, imp., clark	1
368	Cultivator, riding	3	559	Asphalt, bulk	4
369	Grain drill	3	560	Plaster cord	1
370	Engine, 3-horsepower	2	585	Carbon dioxide liquid	1
371	Forks, hay	3	590	Salicylic acid	2
372	Disk harrow	3	592	Acid, sulphuric	2
373	Harrow	4	595	Aluminum sulphate	3
375	Combination harvester-thresher	1	601	Baking powder	2
376	Boe, garden	1	603	Bleaching powder	1
377	Hay loader	3	607	Calcium carbide	1
378	Mower	4	611	Coal tar, black	1
379	Corn pickers	1	626	Sodium bicarbonate	2
380	Corn planter	2	630	Sulphur, crude	1
381	Flow tractor	3	649	Peroxide of hydrogen	2
385	Rake, 14 teeth	3	676	Carvers, mach.	3
386	Rake, self-dumping	4	677	Knives and forks	1
387	Rake, side delivery	4	687	Ironers, electric	2
389	Corn sheller	5	694	Sewing machines	3
391	Spade	3	698	Ranges, electric	2
392	Manure spread	3	702	Dinner sets, 100 pieces	5
393	Grain thrasher	2	704	Nappies, common	3
394	Tractor, 10-20 horse-power	4	755	Batteries, radio, dry	1
398	Angle irons	2	759	Cigar boxes	2
399	Angers	1	772	Shipping cases	2
402	Bar iron	2	775	Soap, laundry	1
417	Chisels	2	777	Toilet soap	2
418	Files, 8-inch	2	781	Tobacco, plug	1
421	Knives, cut	3	782	Tobacco, smoking	5

GROUP II (5-7 CHANGES)

95	Bread	3	543	Chrome	3
96	do	1	563	Door frames	1
225	Leather belting	2	565	Glass	2
227	Gloves	3	578	Slate	1
240	Overcoats	6	581	Crushed stone	1
336	Cotton thread	1	586	Acid, muriatic	1
337	Linen shoe thread	3	587	Acid, nitric	1
374	Harrow	4	599	Aerogenous oxide	1
382	Plows	5	600	Baking powder	1
383	do	4	608	Calcium chloride	1
384	Pumps	6	610	Sulphur brown	1
393	Cream separator	3	628	Sodium silicate	1
398	Shovels	3	642	Chloroform	2
395	Farm tractor	4	644	Epsom salt	1
396	Wagon	6	661	Potash, muriatic of	7
397	Windmill	4	678	Carpets	2
400	Axe	1	679	do	5
415	Sanitary cans	4	681	Linoleum	5
419	Hammers	6	685	Electric irons	4
420	Hatchets	5	690	Wall cloth	4
437	Planes	6	693	Sewing machines	3
443	Saws	2	705	Pitchers	1
444	do	2	706	Plates	1
502	Brick, common	4	707	Tea cups and saucers	1
505	Floor tiles	9	708	Tumblers	6
507	Cement roofing, tile	2	757	Caskets, metal	4
508	Wall tile	3	758	Caskets, wood	1
530	Enamel	3	761	Matches	1
534	Roof and barn paint	3	762	Plate glass mirror	10
545	Varnish	3	767	Asbestos pipe cover	5
547	Lampblack, green, light	1			

TABLE II.—Frequency groups Continued

Code No.	Description	Sensitivity group	Code No.	Description	Sensitivity group
GROUP III (8-11 CHANGES)					
100	Crackers	5	573	Plaster	1
102	Sugar cookies	2	584	Acid, boric	3
117	Butter pretzels	3	604	Borax	4
155	Grape juice	5	612	Indigo	3
158	Cocoa	3	615	Creosote oil	5
160	Shoes, small boys'	5	620	Potash, caustic	2
191	Shoes, child's	2	622	Sodium carbonate	2
193	Shoes, youth's	4	624	Salt, granulated	1
197	Shoes, men's	6	629	Sodium sulphide	1
243	Boys' suits	7	632	Toluene	3
244	Suits, men's	8	648	Opium	1
247	Topcoats	6	658	Phosphate rock	1
250	Men's work pants	7	659	Kainit	2
409	Boiler tubes	2	660	Manure salts	2
435	Pipe	2	662	Potassium sulphate	1
455	Pipe, galvanized steel	2	680	Carpets	5
460	Tin plate	4	682	Linoleum, rug	1
466	Wire fencing	4	684	Linoleum	4
499	Fire brick	6	701	Electric iron	3
503	Silica brick	7	711	Electric washing machine	4
504	Drain tile	7	743	Book paper	6
526	California redwood	7	744	Paper, newsprint	2
532	House paint	6	752	Tissue paper	3
533	Porch and deck paint	2	746	Paper, wrapping	1
553	Prussian blue	3	770	Garden hose	5
558	Zinc oxide	3	771	Rubbers, men's	1
561	Building board	2	773	Cigarettes	6
564	Window frames	4			

GROUP IV (12-16 CHANGES)

45	Milk, fresh	5	513	Lumber, chestnut	2
62	Bread	1	531	Inside flat paint	7
94	do	8	548	White lead	2
176	Salt	2	562	Dowels	5
194	Shoes, men's	5	567	Glass	7
200c	Shoes, women's	3	569	Gravel	3
208	do	5	571	Lime, hydrated	3
223	Suitcases	6	572	Sewer pipe	3
230	Traveling bags	6	579	Sand	4
242	Shirts	7	580	Window sash	8
245	Suits	8	598	Anilin oil	1
252	Tailor's damask	9	605	Calcium acetate	1
264	Sunglass	5	613	Coppers	5
269	Filling sateen	7	617	Logwood extracts	7
292	Ladies' union suits	6	618	Naphthalene	6
294	Men's union suits	2	625	Soda ash	2
309	Women's dress goods	5	627	Caustic soda	1
315	Flannel	2	646	Iodine	1
330	Artificial leather	2	652	Quinine	2
331	do	2	654	strychnine	2
333	Rope, sisal	5	655	Zinc chloride	1
334	do	3	657	Blankets	8
338	Binder twine	7	673	do	7
401	Machine bolts	5	674	do	7
413	Track bolts	4	675	Comfortors	8
422	Door knobs	6	683	Linoleum	6
441	Small rivets	4	695	Window shades	5
453	Terne plate	4	756	Storage battery	3
469	Aluminum, ingot	1	768	Rubber heels	6
496	Laundry tubs	5	769	do	3
506	Hollow tile	8	774	Soap	7
509	Cement	4			

GROUP V (17-22 CHANGES)

93	Bread	7	454	Tie plate steel	4
133	Canned asparagus	4	471	Babbitt metal	9
169	Jelly	3	494	Sinks	4
171	Molasses	3	500	Brick, silica	4
174	Peanut butter	9	501	Painting blocks	5
177	Canned soup	2	529	Shingles, cypress	9
178	Cornstarch	6	539	Carbon black	8
182	Tea	8	544	Chrome yellow	9
185	Shoes, men's	5	553	Putty	6
202	Shoes, women's	5	582	Tar	7
219	Leather, glazed kid	7	583	Acid, acetic	1
228	Harness	5	595	Ammonia	1
248	Boys' knee pants	10	597	Aqua ammonia	1
249	Men's pants	9	626	Formaldehyde	4
260	Gingham	7	633	Salt cake	2
295	Rayon	6	637	Alcohol	9
305	Spain silk	5	638	Coffee	7
312	Suiting	9	641	Chlorine	3
314	Women's dress goods	5	650	Phenol	1
316	Overcoats	3	654	Potassium iodide	1
317	Rope, manila	5	653	Sodium phosphate	1
340	Twine	9	697c	Fertilizer	5
341	Carpet yarn	5	672	Blankets	8
364	Petroleum	6	680	do	6
411	Flow bolts	5	688	Oilcloth	1
412	Stove bolts	6	698	do	6
423	Locks	3	770	Wood pulp	10
429	Ferromanganese	3	779	do	1
435	Steel skelp	7	780	Master	2
450	Spikes	4		Starch	5

TABLE II.—Frequency groups—Continued

Code No.	Description	Sensitivity group	Code No.	Description	Sensitivity group
GROUP VI (23-34 CHANGES)					
43	Milk, fresh.	3	408	Steel billets.	6
114	do.	7	414	Butts.	5
120	Maccaroni and spaghetti.	9	416	Malleable iron castings.	4
122	Apples, canned.	5	433	Spiegelstein.	5
125	Cherries, canned.	6	440	Rivets, large.	8
134	Canned pineapples.	6	442	Wire rods.	6
162	Canned vegetables.	6	452	Steel structural.	6
200	Pink salmon.	6	481	Zinc sheets.	4
250	Harness leather.	5	490	Rancho hoiler.	7
258	do.	8	493	Radiation.	2
266	Percale.	7	495	Bathrubs.	4
275	Woven madras.	5	512	Siding, cedar.	5
317	Toweling.	9	514	Lumber, cypress.	6
286	Hose, m.d.s.	9	525	Lumber, poplar.	7
287	Hosiery.	8	545	Ethyl acetate.	3
289	do.	5	546	Copal.	6
294	Underwear, men's, 2 pc.	6	570	Quicklime.	3
311	Crepe.	7	594	Methanol.	4
311	Flannel.	7	602	Benzene.	1
313	Women's dress goods.	7	606	Calcium arsenate.	4
317	Overcoating.	9	621	Quebracho extract.	9
318c	Suitings.	8	635	Citric acid.	3
322	Unfinished worsted, suit- ing.	8	740	Box boards.	40c
346	Coal, mine run, bitumi- nous.	8	742	Box board.	7
350c	Coke.	3	747	Wood pulp.	5
401	Bar iron.	6	754	Mechanical pulp.	8
405	Steel bars, Pittsburgh.	7	776	Barrels, wood.	5
				Soap flakes.	9
				Powdered soap.	9

GROUP VII (35-49 CHANGES)

89	Milk, condensed.	3	427c	Pig iron.	7
91	Powdered skimmed milk.	8	431	do.	9
128	Cranberries.	2	438	Steel plates.	6
136	Pears.	1	457c	Wire fence.	1
138	String beans, canned.	7	461	Wood screws.	4
139	Tomatoes.	4	491	Water closets.	4
172	do.	8	492	Lavatories.	4
172	Oleomargarine.	8	498	Brick, common.	8
186	Vegetable oil.	5	518	Lumber, hemlock.	9
199	Vinegar.	5	519	Lumber, maple.	9
202c	Spun silk.	6	520	Lumber, oak.	6
221	Leather, side chrome.	8	521	Lumber, white pine.	4
229	Overalls.	9	524	Ponderosa pine.	6
239	Cotton flannel.	8	537	Butyl acetate.	2
270c	Sheeting.	8	574c	Prepared roofing.	4
277	Ticking.	9	577	do.	4
288	Hosiery, women's rayon.	7	588	Red oil.	2
290	Hosiery, women's silk.	7	591	Acid, stearic.	2
302c	Spun silk.	5	593	Alcohol, denatured.	1
335	Sisal.	10	619	Fine oil.	3
343	Coal, anthracite.	1	636	Acid, tartaric.	5
344	do.	1	640	Castor oil.	4
345	do.	1	643	Cream of tartar.	1
347	Coal, sized, bituminous.	5	645	Glycerine.	1
348	Coal, screenings, bitumi- nous.	4	657	Bones.	8
362	Kerosene.	4	664	Superphosphate.	4
365	Petroleum.	7	666	Fertilizer.	9
403	Reinforcing bars.	8	691	Pails.	12
404	Steel bars.	8	692	Pillowcases.	6
406	Bar steel, cold finish.	7	696	Sheets.	5
424	Nails.	6	741	Box board.	8

GROUP VIII (50-77 CHANGES)

46	Peanuts.	10	165	Fish, salt herrings.	4
47	Seed, alfalfa.	10	166	Fish, salt, mackerel.	9
59c	do.	10	167	Salmon, smoked.	4
65c	do.	10	173	Oil, oil.	10
90	Milk, evaporated.	6	174	Corn oil.	10
119	Rice.	4	187	Peanut oil.	12
121	Canned apricots.	6	188	Soybean oil.	10
123	Canned peaches.	6	215	Goatskins.	9
124	Canned pears.	6	222c	Leather, oak.	8
132	Bananas.	3	223	Leathers.	9
135	Canned corn.	7	255	Drillings.	9
137	Canned spinach.	10	256	Duck.	8
141c	Meat, fresh.	8	261c	Muslin.	7
145	Bacon.	10	272c	Sheeting.	15
163	Fish, canned salmon.	6	276	Percale.	8
164	Fish, pickled cod.	7	324	Worsted yarns.	9

TABLE II.—Frequency groups—Continued

Code No.	Description	Sensitivity group	Code No.	Description	Sensitivity group
GROUP VII (50-77 CHANGES)—Continued					
332c	Yarn, wool.	9	485	Brass tube.	8
332c	Cotton rope.	8	486	Brass wire.	8
349	Coke.	10	487	Copper wire.	10
366	Petroleum.	8	517	Lumber, gum.	9
446	Pipe.	10	527	Lumber, spruce.	8
446	Steel sheets.	6	547	Flour.	7
447	Automobil ebod sheets.	6	549	Litharge.	8
448	Sheets, steel.	5	614	Copper sulphate.	9
453	Cold rolled strips.	8	633	Ammonia.	8
475	Lead pipe.	8	636	Chile salt peter.	3
477	Brass rods.	8	663	Tankage.	10
478	Drawn copper rods.	8	709	Tubs.	9
480	Copper sheets.	7	753	Lubricating oil.	5
483	Solder.	10	768	Neutral oil.	5

GROUP IX (78-92 CHANGES)

19c	Sheep.	10	281c	Cotton yarn.	9
36	Apples.	9	328	Hemp.	10
39	Hay.	8	329	Jute.	9
40	do.	9	339	Twine.	10
48	Seed.	10	345	Fuel oil.	9
50	do.	8	356	do.	7
50	Potatoes.	9	358	Gasoline.	7
50	do.	9	375	Kerosene.	5
103c	Flour.	9	445	Steel, scrap.	10
116	Corn meal.	10	472	Copper, ingot.	10
118	Rice.	8	473	Lead, pig.	9
125	Apples, dried.	8	476	Quicksilver.	8
127	Apricots, dried.	8	488	Zinc, pig.	10
129	Peaches, dried.	8	510	Lumber, lath.	7
130	Prunes.	8	511	do.	10
131	Raisins.	9	515	Lumber, sheathing.	10
140	Beef, cured.	9	516	Lumber, siding.	10
146	Pork, salted.	10	522	Pine, flooring.	4
147	Pork, dry, salted.	10	528	Lumber, shingles.	9
149	Meat pork.	9	551	China, wood oil.	10
152	Dressed poultry.	6	552	Linseed oil, raw.	9
161	Copra.	10	555	Shellac.	9
179	Sugar.	5	631	Tallow, Facker's.	10
183	Cocnut oil, crude.	9	634	Palm, tree oil.	9
9	Cowhides.	10	639	Camphor.	6
211	Calfskins.	10	647	Menthol.	6
216	Hides, kip.	10	737	Cottonseed meal.	7
217	Sheep pelts.	10	738	Linseed meal.	6
265	Duck.	9	761	Cylinder oil.	6
278	Osaburg.	9	769	Neutral oil.	8
279	Tire fabrics.	8	784	Paraffin wax.	8
	do.	9			

GROUP X (93-95 CHANGES)

1	Barley.	10	144	Mutton, dressed.	7
2	Corn.	10	148	Smoked ham.	9
4	Oats.	10	150	Pork, fresh.	10
5	Rye.	10	151	Veal, fresh.	9
12	Wheat.	10	153	Dressed poultry.	9
13c	Culves.	9	157	Cocoa beans.	10
16	Cows.	10	159	Coffee, Brazil.	6
15c	Steers.	9	160	Coffee, Santos.	6
17c	Hogs.	10	170	Lard.	10
20	Lemons.	9	175	Pepper.	7
22c	Poultry.	7	180	Sugar.	5
24c	Cotton.	9	181	Tallow, edible.	10
27c	Eggs.	7	185	Cottonseed oil.	10
30	do.	2	372c	Hides.	6
35	Apples.	5	267	Print cloths.	9
37	Lemons.	5	268	do.	9
38	Oranges.	6	281c	Cotton yarn.	9
42	Hops.	9	290c	Raw silk.	8
49	Flaxseed.	9	309c	Silk yarns.	7
51	Tobacco.	10	327	Burlap.	7
52	Beans, dried.	10	357	Gasoline, natural.	9
53	Onions.	10	376	Gasoline.	6
55c	Potatoes.	9	470	Antimony.	6
68c	Butter.	9	482	Silver.	8
68c	Cheese.	8	484	Tin.	10
9	Oatmeal.	9	534	Rosin.	8
102	Flour.	9	556	Turpentine.	2
113	Hominy grits.	10	736	Milled.	10
115	Corn meal.	10	737	do.	10
143	Lamb.	7	751c	Rubber, crude.	10

TABLE III.—Sensitivity groups

[Prices grouped according to index of depression sensitivity]

Code No.	Item	Code No.	Item
GROUP 1 (SENSITIVITY —20.6-0.4 PERCENT)			
573	Plaster.	601	Baking powder.
658	Phosphate rock, 68 percent.	602	Combine threshers.
651	Potash, iodine.	624	Salt.
336	Cotton thread.	344	Coal.
599	Arsenic.	96	Bread.
661	Potash, muriate.	775	Soup, laundry.
662	Sulphate of potassium.	131	Raisins.
779	Cigarettes.	536	Barytes, ground.
646	Iodine.	541	Lampblack.
379	Matches, nonsafety.	677	Knives and forks.
600	Baking powder.	653	Soda phosphate.
345	Coal.	154	Ginger ale.
500	Board, plaster.	746	Paper, wrapping.
379	Corn picker.	628	Sodium silicate.
644	Epsom salts.	587	Acid, nitric.
598	Coal-tar products.	609	Coal-tar products.
555c	Glass, plate.	590	Coal tar, salicylic acid.
707	Teas, cups, saucers.	530	Sulphur, crude.
761	Matches, safety.	607	Calcium carbide.
706	Plates, granite.	241	Shirts, men's.
596	Ammonia, aqua.	474	Nickel, electrode cathodes.
62	Bread.	611	Coal tar, indigo paste.
629	Soda sulphide.	781	Tobacco, plug.
650	Phenol, carbolic acid.	585	Carbon dioxide.
343	Coal.	399	Angers.
469	Aluminum.	439	Rails, steel.
596	Ammonia, anhydrous.	416	Pens, capped.
232	Collars, men's.	581	Crushed stone.
97	Corn flakes.	610	Coal-tar products.
622	Benzene.	648	Opium.
755	Batteries, radio.		

## GROUP 2 (SENSITIVITY 0.5-7.5 PERCENT)

418	Files, metal.	293	Underwear, men's.
402	Bar iron.	135	Pipe, steel.
544	Chrome yellow.	330	Artificial leather.
592	Acid, sulphuric.	710	Vacuum cleaner.
586	Acid, muriatic.	620	Potash, caustic.
398	Angle bars, steel.	676	Carvers, stag.
409	Boiler tubes.	772	Shipping cases.
608	Manure urea.	370	Engine, agriculture.
626	Sodium bicarbonate.	655	Zinc chloride.
156	Sodas.	497	Concrete blocks.
176	Salt.	625	Soda ash.
417	Chisels.	659	Knit.
542	Paint.	561	Board, building, wall.
415	Sanitary cans.	101	Cookies, sugar.
436	Pipe, steel.	128	Currants, dried.
759	Clear boxes.	623	Salt cake, ground.
622	Soda, carbonate.	380	Corn planter.
507	Cement roofing tile.	687	Ironers, electric.
531	Paint, inside.	649	Peroxide of hydrogen.
191	Shoes, child's.	444	Saws.
456	Vises.	226	Gloves, men's.
443	Saws.	494	Sinks.
744	Paper, newsprint.	550	Lithopone.
654	Alkaloids, strychnine.	536	Turpentine.
33	Onions.	331	Artificial leather.
425c	Iron ore.	393	Grain threshers.
627	Soda, caustic.	538	Bone black.
547	Whiting, imp. chalk.	777	Snap, toilet.
537	Acetate, butyl.	225	Leather belting.
608	Calcium, chloride.	177	Soup, canned.

## GROUP 3 (SENSITIVITY 7.8-12.8 PERCENT)

367	Grain binder.	95	Bread.
570	Lime, building.	78	Caskets, wood.
394	Spade, garden.	769	Rubber belts.
530	Alcohol, denatured.	90	Wheat cereal.
391	Enamel, paint.	228	Harness, set.
619	Plow tractor.	377	Hay loader.
191	Oil, pine.	158	Cocoa.
613	Coppers.	371	Forks, hay.
376	Hoe, garden.	392	Manure spreader.
137	Spinach, canned.	423	Locks.
545	Ethyl, acetate.	549	Iron oxide.
543	Chrome green, light.	534	Roof and barn paint.
171	Molasses.	535	Varnish.
595	Alum, sulphate.	169	Jelly, grape.
132	Bananas.	43	Milk.
623	Soda, nitrate.	533	Paint, porch.
558	Zinc, oxide.	584	Acid, boric.
448	Lead, carbonate.	394	Gram drill.
385	Rake, steel.	571	Lime, hydrated.
421	Cork knives.	372	Harrow, disk.
227	Gloves, unlined.	368	Cultivator.
698	Ranges, electric.	604	Borax.

TABLE III.—Sensitivity groups—Continued

Code No.	Item	Code No.	Item
GROUP 3 (SENSITIVITY 7.8-12.8 PERCENT)—Continued			
681	Linoleum.	346	Coal.
635	Citric acid, crystals.	206c	Shoes, women's.
388	Cream separator.	665	Bleaching powder.
630	Shovels.	632	Coal tar, toluene.
337	Shoe thread.	756	Storage battery.
686	Heating appliances.	508	Wall tile, glazed.
638	Alkaloids.	359	Gravel, ton.
704	Nappies.	117	Pretzels, butter.
386	Rake, self-dumping.	89	Milk, condensed.
GROUP 4 (SENSITIVITY 13.0-17.5 PERCENT)			
378	Mower.	640	Castor oil.
693	Electric sewing machine.	684	Linoleum.
397	Windmill, steel.	189	Shoes, youths'.
365	Wagon.	395	Farm tractor.
574c	Roofing.	263	Door frames.
492	Lavatories.	564	Window frames.
757	Caskets, metal.	616	Formaldehyde.
490	Washing machine.	440	Range boiler.
383	Plows, walking.	481	Zinc, sheet.
133	Asparagus, canned.	119	Rice, clean.
579	Sand, building.	362	Kerosene.
348	Coal.	442	Wire rods.
577	Roofing, shingles.	559	Asphalt, bulk.
572	Pipe, sewer.	139	Tomatoes, canned.
387	Rake.	465	Bathtubs.
440	Rivets.	440	Axes.
416	Iron castings.	460	Fencing, wire.
583	Acetic acid.	612	Coal tar, jet.
394	Tractor.	457c	Wire.
684	Sewing-machine treadle.	794	Methanol.
165	Fish, herring.	643	Cream of tartar.
690	Wall cloth.	374	Harrow, 17-tooth.
450	Bikes.	373	Harrow, peg-tooth.
452	Brick, sandlime.	652	Quinine, sulphate.
455	Tin plate.	685	Heating appliances, electric iron.
642	Chloroform.	664	Superphosphate.
606	Calcium arsenate.	521	Lumber, pine.
666c	Fertilizer.	454	Steel, tie plate.
403	Terneplate.	509	Cement, portland.
500	Brick, front.	532	Paint, house.
413	Track bolts.		
GROUP 5 (SENSITIVITY 17.6-23.2 PERCENT)			
155	Grape juice.	189	Vinegar, cider.
315	Flannel.	518	Lumber, hemlock.
667c	Fertilizer.	120	Apples, canned.
347	Coal.	384	Pumps, agriculture.
179	Sugar, granulated.	496	Laundry tubs.
380	Corn sheller.	636	Acid, tartaric.
763	Oil, lubricating.	449	Steel skelp.
676	Pitchers.	334	Rope, sisal.
578	Slate, roofing.	363	Kerosene.
37	Lemons.	778	Starch, laundry.
289	Hosiery, silk.	767	Plate glass, mirror.
414	Butts, steel.	333	Rope, manila.
501	Paving blocks.	382	Flows, walking.
180	Sugar, raw.	702c	Dinner sets.
294	Underwear, worsted.	749	Wood pulp.
201c	Shoes.	264	Sainsook, muslin.
305	Spun silk.	290	Harness leather.
770	Garden hose.	190c	Shoes.
275	Madras, woven.	341c	Carpet yarn, lute.
282	Tobacco, smoking.	410	Machine tools.
433	Pig iron.	265c	Rayon.
420	Hatchet.	35	Apples.
615	Crocodile oil.	448	Sheets, galvanized steel.
370	Shoes, men's.	512	Siding, red cedar.
364	Petroleum, crude.	679	Carpets, Brussels.
45	Milk.	765	Oil, neutral.
734	Barrel.	100	Crackers, soda.
303c	Silk, spun.	57c	Glass, window.
605	Calcium lime.	265c	Shoes, women's.
218	Shoes, women's.	682	Linoleum, rug.
685	Dress goods, cotton.	186	Olive oil, edible.
685	Window shades.		
GROUP 6 (SENSITIVITY 23.3-27.4 PERCENT)			
771	Rubbers, men's.	743	Book paper.
768	Rubber belts.	247	Steel barrels.
683	Linoleum, inlaid.	400	Overcoat, heavy.
121	Apricots, canned.	122	Cherries, canned.
419	Hammer.	162	Salmon, pink.
689	Oil cloth, table.	412	Stove bolts.
350c	Coke.	335	Steel plates.
124	Pears, canned.	446	Steel sheets.
229	Suitcases.	408	Steel billets.
422	Door knobs, metal.	437	Planes, jackplane.
750	Soda, bleached.	90	Milk, evaporated.
499	Firebrick.	411	Flow bolts.

TABLE III.—Sensitivity groups—Continued

Code No.	Item	Code No.	Item
GROUP 6 (SENSITIVITY 23.3-25.4 PERCENT)			
520	Lumber, oak.	311	Dress goods, wool.
546	Copal, manila.	647	Menthhol.
447	Auto body sheets.	401	Bar iron.
680	Carpets, Wilton.	514	Cypress.
503	Silica brick.	125	Pineapples, canned.
613	Oil cloths.	269	Filling sateen.
231	Collars, men's.	160	Coffee.
230	Traveling bags.	764	Cylinder oil.
197	Shoes, men's.	153	Poultry, fresh.
123	Peaches, canned.	252	Table damask.
618	Naphthalene.	159	Coffee.
359c	Gasoline.	178	Corn starch.
247	Topcoats.	708	Tumblers.
452	Steel, structural.	553	Puffy.
202c	Shoes, men's.	134	Beans, canned.
424	Nails, wire.	291	Underwear, cotton.
38	Oranges.	639	Camphor.
163	Salmon, cann'd.	162	Poultry.
157	Cocoa beans.	692	Pillow cases.
GROUP 7 (SENSITIVITY 27.5-32.9 PERCENT)			
405	Steel, sheet bars.	93	Bread.
280	Toweling, cotton.	260	Gingham.
167	Fish, salmon.	356	Fuel oil.
164	Fish, cod, canned.	404	Steel, merchant bars.
288	Hosiery, rayon.	498	Brick, common.
562	Doors, pine.	327	Burlap.
617	Logwood extract.	27c	Eggs.
678	Carpets, Axminster.	525	Lumber, poplar.
30	Figures.	547	Pigments, red lead.
309	Dress goods, women's.	745	Tissue paper.
22c	Poultry, live.	300c	Silk yarn.
611	Twine, binder.	365	Petroleum, crude.
429	Pig iron.	138	Beans, string.
526	California redwood.	249	Pants, men's.
292	Underwear, cotton.	427c	Pig iron.
675	Oil, palm, crude.	74	Soap.
263	Comforters, sateen.	758	Linsed meal.
701	Tablecloths.	358	Gasoline.
510	Lumber, fir.	742	Box board.
250	Men's work pants.	310	Flannel, wool.
135	Corn, canned.	243	Boys' suits, wool.
513	Lumber, chestnut.	260	Hosiery, silk.
491	Water closets.	113	Lamb, fresh.
641	Chlorine.	144	Mutton, dressed.
40c	Hay.	313	Dress goods.
582	Tar, pine.	266	Percale.
461	Wood screws.	219	Leather.
594	Drain tile, clay.	466	Steel bars.
175	Pepper, black.	261c	Muslin.
44	Milk.	480	Copper sheet.
242	Shirts.		
GROUP 8 (SENSITIVITY 33.2-39.4 PERCENT)			
506	Tile, hollow.	672	Blankets, cotton.
403	Reinforcing bars.	221	Leather, tanned.
244	Men's suits.	316	Overcoating.
366	Petroleum, crude.	129	Peaches, dried.
766	Neutral oil.	636	Ammonia sulphate.
591	Acid, stearic, distilled.	580	Window sash.
657	Bones, ground.	259	Cotton flannel.
258	Cotton flannel.	127	Apprecs, dried.
493	Radiator.	478	Copper rods.
741	Box boards.	476	Quicksilver, flask.
94	Bread.	278	Tire fabrics.
50	Seed, timothy.	922	Suttings.
485	Yellow brass tube.	479	Brass.
287	Hosiery, cotton.	245	Suits, serge.
549	Litharge, powdered.	118	Rice, clean.
440	Riblets, large 1/2-inch.	130	Prunes, dried.
270c	Sheeting, bleached.	673	Blankets, cotton.
527	Lumber, spruce.	172	Oleomargarine.
674	Blankets.	524	Lumber, ponderosa pine.
89c	Sheets.	747	Wood pulp.
332	Cotton rope, awning.	539	Carbon black.
182	Tea, Formosa.	486	Brass wire.
168	Glucose, corn syrup.	253	Dentins, cotton.

TABLE III. Sensitivity groups—Continued

Code No.	Item	Code No.	Item
GROUP 8 (SENSITIVITY 33.2-39.4 PERCENT—Continued)			
475	Lead, pipe.	256	Duck.
276	Percale, print.	91	Milk, powdered.
318c	Suttings.	126	Apples, evaporated.
474	Steel straps.	240	Box board, chip.
290c	Raw silk.	482	Silver bar.
80c	Cheese.	477	Yellow brass rods.
222c	Leather.	39	Hay, alfalfa.
141c	Meat, beef.	281	Paraffin wax.
GROUP 9 (SENSITIVITY 39.5-47.5 PERCENT)			
709	Tubs, galvanized iron.	588	Oil, red, oleic acid.
103c	Flour, wheat.	12	Calves.
102	Flour, rye.	18c	Butter.
601	Pails, galvanized iron.	357	Gasoline.
317	Overcoating, wool.	312	Sutting.
340	Twine, Java sisal.	614	Copper sulphate.
28c	Hosiery, cotton.	54	Potatoes, sweet.
524	Yarns, worsted.	634	Palm oil.
329	Jute, raw.	339	Cotton twine.
555	Shellac.	268	Print cloths.
252c	Woolen yarn.	517	Lumber, gum.
114	Macaroni and spaghetti.	773	Soap flakes.
431	Pig iron.	36	Apples.
277	Ticking.	35c	Potatoes, white.
279	Tire fabrics.	284c	Cotton yarn.
621	Quebracho extract.	49	Flaxseed.
257	Duck.	239	Cypress shingles.
183	Alcohol, ethyl.	267	Print cloths.
150	Linseed oil, raw.	20	Lambs.
151	Beef, cured.	529	Overalls, cotton.
141	Veal, fresh.	35c	Cocoanut oil, crude.
641	Butmed.	150	steers.
174	Peanut butter.	149	Yarns, worsted.
696	Fish, mackerel.	24c	Cotton, Middling.
257	Gart-skins.	528	Lumber, cedar shingles.
148	Pork, hams.	776	Powdered soap.
421	Ballot metal.	519	Lumber, maple.
281c	Cotton yarn.	58	Potatoes, white.
505	Floor tiles.	473	Lead, pig.
272c	Shedding.	42	Hops.
255	Drillings, cotton.	265	Osnaburg.
GROUP 10 (SENSITIVITY 47.6-51.8 PERCENT)			
161	Copra, dried.	185	Cottonseed oil.
136	Cows.	222	Lumber, pine.
248	Pants, boys' wool.	181	Tallow, edible.
184	Vegetable oil, corn.	116	Corn meal.
494	Pipe, cast-iron.	5	Rye.
748	Wood pulp, unbleached.	65c	Wool.
4	Outs.	211	Cowhides.
47	Seed, alfalfa.	631	Tallow.
349	Coke.	46	Peanuts.
355	Fuel oil.	428	Hemp, manila.
511	Lumber, pine, lath.	184	Tin, pig.
388	Zinc, pig.	736	Milled, bran.
145	Bacon.	551	China wood oil.
39c	Wool.	574	Rosin, yard basis.
616	Lumber, fir.	17c	Hops.
487	Copper wire.	665	Tankage, ton.
737	Cottonseed meal.	739	Milled.
1c	Wheat.	212c	Hides, steers.
24c	Sheep.	445	Steel, scrap.
473	Oil, oil.	214	Cuf-skins.
1	Barley, malting.	51	Tobacco, leaf.
3	Copper, ingot.	346	Pork, cured.
28	Vegetable oil, soybean.	2c	Corn.
215	Lumber, fir.	48	Seed, clover.
236	Kigs.	762	Asbestos pipe covering.
165	Glycerin.	470	Antimony.
484	Solder.	117	Pork, cured.
72	Beans, dried.	217	Sheep pelts.
176	Lard.	115	Corn meal, d.
170	Pork, hams.	113	Hominy grits.
235	Sisal.	731c	Rubber, crude.
187	Peanut oil, crude.		

TABLE IV.—Annual price data—1913-37

FREQUENCY GROUP INDEXES—1926-29=100

Group No.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
I.....	64.9	67.1	76.1	94.7	105.2	124.0	118.5	128.5	114.4	97.2	103.7	104.8	101.7	101.9	100.2	99.7	98.9	97.7	95.4	93.1	91.6	94.2	95.3	95.8	98.1
II.....	58.0	58.6	65.5	80.1	100.2	116.1	117.2	134.1	115.3	99.8	101.1	104.2	101.5	101.4	100.3	99.7	98.7	95.9	90.5	85.2	87.6	86.6	87.7	92.5	
III.....	71.7	75.1	110.7	151.9	180.1	191.2	173.0	177.7	123.4	99.8	105.1	103.9	101.9	103.7	100.4	98.9	97.0	95.4	90.0	82.1	81.7	87.4	87.3	87.3	92.0
IV.....	57.8	58.0	68.2	87.1	106.2	123.4	121.1	147.4	111.4	98.8	104.2	104.1	103.4	102.9	99.2	99.7	98.4	94.2	84.2	76.6	77.7	84.6	82.5	84.8	90.2
V.....	63.9	64.7	72.1	95.0	119.2	135.5	130.8	157.6	103.2	114.4	110.5	109.5	104.4	109.9	98.0	97.1	89.8	79.3	70.6	72.2	80.3	80.1	80.7	85.9	
VI.....	66.4	63.0	69.6	92.6	124.5	137.0	132.2	175.9	106.0	102.6	119.9	108.7	106.2	102.5	100.3	98.8	98.5	91.6	80.7	69.8	74.6	82.2	81.8	82.6	91.3
VII.....	72.1	69.0	71.9	95.7	128.2	151.3	146.6	171.6	108.5	100.7	111.2	105.6	105.7	101.8	99.4	99.8	98.9	90.0	76.8	68.3	71.2	78.5	79.0	80.5	88.7
VIII.....	70.2	66.6	70.6	93.2	130.3	149.1	143.4	157.2	93.4	97.3	107.8	105.5	107.3	101.9	98.0	99.6	100.7	88.0	71.3	56.4	63.0	72.7	76.1	78.3	87.1
IX.....	70.7	68.6	71.4	90.0	123.4	141.8	134.6	160.6	83.1	94.0	99.7	103.8	113.2	105.4	96.3	98.7	99.7	82.2	61.5	47.1	57.2	70.6	75.0	78.5	85.8
X.....	72.8	71.6	72.7	88.4	115.9	134.8	144.4	139.9	79.3	87.2	91.8	93.7	108.0	100.6	99.2	101.2	98.9	76.8	56.5	44.7	59.8	62.2	69.2	71.0	77.8
X-a.....	71.4	72.5	71.2	91.6	119.9	131.8	146.5	139.5	77.9	86.6	92.3	92.9	110.1	105.7	98.8	99.2	96.7	73.2	53.9	43.3	47.1	55.3	63.1	66.0	71.1
X-b.....	71.4	71.0	75.4	84.9	118.0	149.1	142.8	141.5	81.8	88.7	91.4	95.6	105.9	94.4	104.0	104.2	102.0	81.9	63.2	47.8	56.1	72.7	78.2	78.5	87.5

FREQUENCY SLOPE—1926-29=0—PERCENT PER GROUP

m <sub>1</sub> .....	1.71	86	-1.23	-1.24	.97	90	2.09	1.19	-4.33	-60	-65	-55	87	105	-39	05	18	-2.28	-5.27	-7.50	-5.57	-3.78	-2.80	-2.34	-1.73
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BUREAU OF LABOR STATISTICS WHOLESALE PRICE INDEX—1926-29=100

P.....	72.1	70.3	71.8	88.3	121.3	135.6	143.1	159.4	100.8	99.8	103.9	101.3	106.9	103.3	98.5	99.8	98.4	89.2	73.4	66.9	68.0	77.3	82.6	83.4	89.1
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FEDERAL RESERVE BOARD INDEX OF INDUSTRIAL PRODUCTION—1926-29=100

F. R. B.....	1.63	1.51	1.65	1.83	1.85	1.80	.75	.78	.60	.77	.91	.86	.94	.97	.95	1.00	1.07	.87	.72	.58	.68	.71	.81	.95	.99
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<sup>1</sup> Extrapolated from index of *Standard Statistics Co.*

TABLE IV-A.—Annual price data—1913-26

[11 war items eliminated]

FREQUENCY GROUP INDEXES—1926-29=100

Group No.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
I.....	63.4	63.7	66.6	81.3	94.1	113.5	112.1	121.6	110.1	93.1	102.1	103.9	101.4	101.0
II.....	57.3	57.8	61.8	74.3	93.7	109.7	113.2	131.3	115.5	100.5	106.1	105.0	102.0	101.4
III.....	68.8	69.2	75.9	100.0	130.7	140.5	138.9	130.5	119.7	102.5	107.9	107.4	104.4	103.7
IV.....	57.8	57.0	64.8	84.0	104.8	122.2	120.0	147.1	111.1	98.9	104.0	104.0	103.3	102.9
V.....	63.3	62.9	66.2	89.4	115.0	132.6	133.3	162.3	112.6	104.2	112.4	109.8	109.5	104.4
VI.....	65.6	62.3	65.8	91.4	123.0	135.2	130.6	173.7	104.7	102.3	119.5	108.4	105.9	102.5
VII.....	71.9	68.8	71.7	95.3	127.7	150.7	146.0	171.0	107.9	100.7	110.6	105.5	106.1	101.8
VIII.....	70.6	67.0	71.0	93.6	130.5	149.8	144.1	159.1	94.3	97.8	107.8	105.8	108.3	101.9
IX.....	71.2	69.0	72.0	91.4	124.6	142.8	155.3	161.5	84.4	95.2	101.1	104.6	113.8	105.4
X.....	72.2	71.0	72.0	87.6	117.8	133.5	143.1	138.6	78.6	86.5	92.1	94.2	107.7	100.6
X-a.....	73.3	71.4	70.1	90.3	118.1	129.8	144.3	137.5	76.7	85.4	93.0	93.8	109.8	105.7
X-b.....	71.0	70.7	75.1	84.5	118.0	139.5	142.1	140.8	81.4	88.3	91.0	95.1	105.4	94.4

FREQUENCY SLOPE—1926-29=0—PERCENT PER GROUP

m <sub>1</sub> .....	2.12	1.63	1.13	1.30	2.92	2.54	3.19	1.81	-4.06	-.91	-.90	-.77	.81	-.06
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BUREAU OF LABOR STATISTICS WHOLESALE PRICE INDEX—1926-29=100

P.....	72.1	70.3	71.8	88.3	121.3	135.6	143.1	159.4	100.8	99.8	103.9	101.3	106.9	103.3
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FEDERAL RESERVE BOARD INDEX OF INDUSTRIAL PRODUCTION—1926-29=100

F. R. B.....	1.63	1.51	1.65	1.83	1.85	1.80	.75	.78	.60	.77	.91	.86	.94	.97
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<sup>1</sup> Extrapolated from index of *Standard Statistics Co.*

## APPENDIX 3.—EFFECT OF DIFFERENTIATION UPON RIGIDITY AND AMPLITUDE OF PRICE MOVEMENT<sup>1</sup>

The price behavior of trade-marked and standardized products<sup>2</sup> is here examined with a view to discovering the relationship, if any, between product differentiation and the flexibility and sensitivity of prices. For this purpose, the relationship between frequency of price change and amplitude of price movement is here considered for the standard and trade-marked goods which are included in the Bureau of Labor Statistics wholesale price series.

In general, trade-marked or highly differentiated products tend to have highly rigid price structures. When the trade-marked products included in the Bureau of Labor Statistics series are grouped on the basis of frequency of price change according to the classification given in appendix 2, table II, one-half of all the price series for trade-marked products are to be found in groups I and II. Not a single trade-marked or highly differentiated commodity is to be found in the three most flexible price groups—groups VIII to X, inclusive.

In order to see whether the relationship between rigidity and amplitude of price movements is the same for trade-marked and for standard products, prices whose flexibility is similar are compared on the basis of sensitivity. For this purpose the average price<sup>3</sup> of trade-marked, semidifferentiated and standard products falling within each of the frequency groups in appendix 2, table II, which included any trade-marked products, were computed, group by group, for each year during the period 1926 to 1936.

This computation reveals a very striking difference in behavior between the prices of standard and of trade-marked products of approximately the same degree of flexibility. The chart illustrates this difference. In each case the price of trade-marked products shows a significantly greater amplitude of movement than does the price of the standard products of the same frequency of price change. The trade-marked products consistently show a more rapid decline during the depression and a sharper rise subsequently than did the standard products in the same price group. Table I expresses this comparison in terms of percentage decline between 1929 and 1932 and percentage rise from 1932 to 1936. In every group but one, trade-marked products show a significantly sharper price decline during the depression,

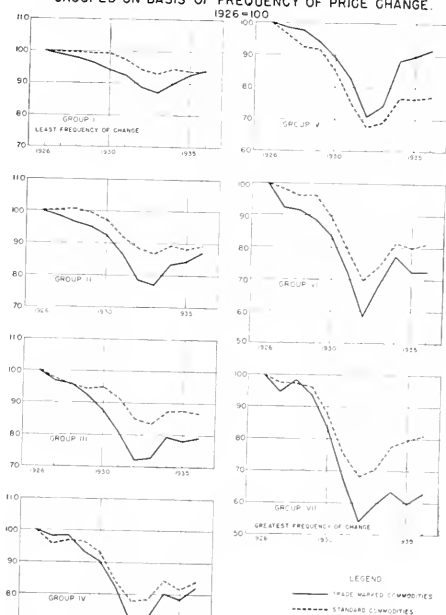
TABLE I.—Comparison of standard and trade-marked commodities in each price frequency group, 1929–32, 1932–36.

Frequency Group	Percent decline 1929 to 1932		Percent rise 1932 to 1936	
	Trade-marked	Standard	Trade-marked	Standard
I.....	8.0	5.3	6.0	-0.4
II.....	17.5	11.1	11.1	.8
III.....	22.0	10.0	9.8	2.2
IV.....	24.9	19.2	15.8	8.0
V.....	24.7	26.4	24.5	13.7
VI.....	34.0	27.4	23.9	16.3
VII.....	42.3	29.0	16.5	18.6
Mean.....	24.6	18.3	16.1	8.5

Source: Appendix 2, table I.

and in the remaining group the difference is small. Taking the average of the seven groups, trade-marked products declined 24.6 percent as against 18.3 percent for standard products. During the rise, behavior was even more sharply distinguished. The rise for trade-marked products was substantially greater than for

COMPARISON OF PRICES OF TRADE MARKED AND STANDARD COMMODITIES GROUPED ON BASIS OF FREQUENCY OF PRICE CHANGE.



See appendix 2 for price groupings.

<sup>1</sup> Appendix 3 was prepared by Saul Nelson.

<sup>2</sup> With few exceptions, standardized commodities are those classified as standard and trade-marked commodities are those classified as unique or differentiated, in appendix 2, table I, column 15.

<sup>3</sup> Geometric averages were used.

standard products in every group but one. The average for the seven groups showed a rise of 16.1 percent for trade-marked articles as against only 8.5 percent for standard products.

Perhaps the most striking feature of this relationship is the consistency with which it expresses itself. This consistency manifestly precludes any possibility that purely chance factors are operating to cause this difference in behavior.

It is important to emphasize that, even for trade-marked products, a marked correlation exists between frequency of change and amplitude of movement. Table I shows that the decline in price experienced by trade-marked products during the depression increased sharply and regularly with frequency of change. In each case, however, the extent of the decline was of approximately the same order as that suffered by standard commodities whose apparent flexibility, judged only by frequency of price change, was considerably greater. Trade-marking thus appears to carry with it

the power to postpone but not to avoid the making of price adjustments to meet changing competitive conditions. The rigidity displayed by the prices of trade-marked articles and that of the prices for standard commodities thus seems to be, to a degree, different in kind.

If the price of a standard product changes but rarely, it is probable that the total amplitude of its fluctuations is also narrow. If, on the other hand, comparatively few price changes are recorded for trade-marked commodities, it is still entirely possible that it will respond fully, though with some delay, to changing general economic conditions. This behavior suggests that the ability of producers of standard products to control the frequency of price change is associated with the ability to restrict actual price fluctuations within narrow limits. Trade-marking, on the other hand, appears to permit stability of price quotations in the absence of the ability to limit the amplitude of price fluctuations.



## APPENDIX 4.—PUBLIC UTILITY PRICES<sup>1</sup>

The statistical information available in the public utility field leaves much to be desired. While it has been possible to collect selling price series for most of the major public utilities, these series for the most part relate only to the country as a whole or to a sample thereof, and thus possess the frailties that characterize any over-all average. In some cases it has been impossible to obtain even a single price series for the entire period of years. In other cases, notably the telephone industry, it has been possible to secure an index for only a single state or area; and for one important industry, motor transport, no worthwhile data are available. Satisfactory series for water transportation are also lacking. Moreover, it has been impossible to obtain adequate data for certain divisions of the utility markets; thus the electric, gas and telephone data relate only to the residential sales of those services. In the case of certain of the measures employed, the accuracy of the data themselves is only approximate as a measure of average price behavior. This is especially true of railroad freight rates.

There is a further inherent deficiency in virtually all of the price statistics presented. The unit of service chosen for such industries as freight transportation or residential telephone service, is not a constant during a period of time. Quality factors, such as speed, convenience, safety and regularity of service are inevitably modified, so that precisely the same thing is not being purchased over a period of years. While it has been impossible to make allowance for changes of this sort in the price series which are presented, it should be recognized that an influence is operative which in many cases amounts to a reduction in price in that a better quality of service is obtained. Changes in quality, however, are usually gradual and of significance only over a period of years rather than during a short-run cyclical period of price fluctuation. Moreover, the same criticism may be advanced toward a large number of price data included in such measurements as the wholesale price and cost of living series of the Bureau of Labor Statistics, with the result that when different price series are compared there is a tendency for errors to be mutually compensatory.

Table I gives in summary the results for each series for 1929, 1932, and 1936.

Table II gives an index of freight rates for 1900 to 1936. To our knowledge there has never been published an accurate index of the freight rate level. It has been customary to employ the revenue per freight

ton-mile as a crude approximation of movements in the level of freight rates, but this index is subject to error in several respects. The changes in average revenue per ton-mile may result not only from adjustments in freight rates, but also from changes in the average distance for which commodities are transported,<sup>2</sup> and shifts in the composition of traffic between high and low revenue commodities. Either an increase in the average length of haul, or a greater proportion of low revenue traffic will tend to reduce the average revenue per ton-mile. A fourth and probably less important variable in the situation is the changing distribution of originated traffic between different sections of the country. Inasmuch as the rate level is not uniform through the United States, an increase in the relative proportion of low rate eastern territory traffic, for example, would operate to lower the revenue per ton-mile.

An adjustment has therefore been prepared which involves a partial correction for two of these factors, the change in length of haul and the shifting commodity composition of traffic. Adjustment for changes in length of haul was made as follows: (1) The average distance of haul for all tonnage carried by the railroad network (i. e., by the railroads treated as one system) was tabulated for the period 1900-1936; (2) A composite progression rate schedule, showing the general effect of distance on the amount charged, was obtained from the Interstate Commerce Commission.<sup>3</sup> This progression rate schedule is not precisely accurate for any rate area, commodity group, or year, but is thought to be roughly representative of the effect of distance upon the level of charges.<sup>4</sup>

From the composite rate schedule a hypothetical total revenue for each length of haul was then computed. Inasmuch as freight rates progress in blocks or steps each comprising a number of miles, it was necessary to interpolate to find a charge for the average haul for each distance in (1) above. It was assumed that for each rate-distance block the rate was centered at the midpoint of the block. (3) This hypothetical revenue, divided by the average length of haul in each year, provided a revenue per ton-mile for each year. (4) This annual revenue per ton-mile was then indexed,

<sup>2</sup> The freight rate is typically based upon a tapering principle, by which the total charge increases much more slowly than does the distance of carriage.

<sup>3</sup> The Interstate Commerce Commission should not be held responsible for the methods employed in the computation of this index, although members of the staff were generous with advice and suggestions.

<sup>4</sup> The representativeness of the schedule is probably less for pre-war than for post-war years.

<sup>1</sup> Appendix 4 was prepared by John D. Sumner, assisted by R. G. Lorenz.

using 1926 as a base. The index thus obtained constituted a correction factor showing roughly the extent to which, assuming no changes in the level of freight rates as such, or in the composition of traffic, actual revenue per ton mile would have changed, due solely to changes in the average length of haul.

Adjustments for changes in the commodity composition of traffic hauled were computed in the following manner: The tonnage originating on Class I railroads was tabulated, broken down according to the six-fold classification of the Interstate Commerce Commission. This classification includes earload shipments of agricultural, animal, mineral, forest and manufacturing and miscellaneous products and less-than-earload freight. The percentage of each commodity group to the total, was then computed and a ton-mile revenue, constant for all years, was assumed for each of the commodity groups. These revenue data, suggested by the Bureau of Statistics of the Interstate Commerce Commission, are believed to be fairly representative of differences between the commodity groups. The assumed ton-mile revenues were as follows: Products of agriculture, 1.142 cents; products of animals, 1.958 cents; products of mines, .802 cent; products of forests, .853 cent; manufacturing and miscellaneous, 1.369 cents; and less-than-earload, 4.155 cents. Using the percentage composition of traffic for each year for weighting purposes, a theoretical average revenue per ton-mile was computed to take account of changes in the relative importance of each major commodity group. This revenue per ton-mile was then indexed, using 1926 as a base. This index provides a correction factor showing the extent to which, assuming no change in the level of freight rates or length of haul, average revenue per ton-mile might be expected to vary, due to changes in the composition of traffic.

The two adjusted indexes were then multiplied together to obtain a combined correction factor. The actual revenue per ton-mile, tabulated from the annual *Statistics of Railways in the United States*, was then divided by the correction factor for each year and the result indexed on a 1926 basis.

Several objections can be brought against each of these two adjustments.

Against the adjustment for length of haul, the following objections may be made:

(a) When there is a shift in the relative importance of the major commodity groups, there is usually an accompanying change in the average length of haul. If one makes adjustment for these shifts in commodity composition of traffic, this adjustment must be made on the basis of the average revenue per ton-mile, which in turn partially reflects the average haul of that commodity. A partial duplication results from making another adjustment for changes in the average length

of haul. The net result of this error may tend either unduly to increase or decrease the index.

(b) The average length of haul during the period was increased in part as a result of changes in the method of reporting traffic. Greater use of through billing and increases in the dimensions of individual railroads have contributed to an apparent increase in haul which did not actually take place. That is, a shipment going from point A to point B may previously have been counted as two originated shipments on account of transfer from one railroad to another, but later is counted as one shipment. Informed sources consider this fictitious increase to be of minor importance.

(c) The rate schedule is not a straight-line progression, but rises more sharply on the short hauls, and approaches the horizontal on the long hauls. The average haul is around 300 miles. At this point, the rise in revenue per marginal ton-mile is less sharp than at shorter hauls. In recent years the lengthened haul is due largely to loss of short-haul traffic to the trucks. Obviously, this means a greater shrinkage in average revenue per ton-mile than can be compensated for by corrections for the lengthened haul at the 300-mile point. This influence is somewhat counterbalanced by a rising length of haul due to the increase of very long hauls, where the rise in marginal revenue per ton-mile is even smaller than at 300 miles.

(d) The assumed progression scale of freight charges, while believed to be substantially representative of the true progression, is not for any year, nor for all rate areas, identical with it.

The adjustment for the changing commodity composition of traffic is subject to the following major defects:

(a) The adjustment made is incomplete in that it was impossible to correct for shifts in the relative importance of high and low revenue freight *within* each of the six major commodity groups. A relative increase in the tonnage of manufactured and miscellaneous products, for example, tends to increase actual revenue per ton-mile for all freight traffic because this group of commodities moves at a higher than average revenue per ton-mile. This *apparent* rise in freight rates is eliminated by the correction factor described above, but only to the extent that the relative increase of traffic in manufactured products did not occur in products *within* that group which were carried at a higher (or lower) revenue per ton-mile than the assumed average of the manufactured products as a whole. Thus, if the increase in major group tonnage is solely due to an increase of high revenue commodities within the group, the correction is incomplete because it does not *sufficiently* deflate the actual revenue per ton-mile of all freight traffic. The rise in the latter resulted partly from an increase in the relative importance of a

high revenue group—manufactured products; this rise the correction factor eliminates. In part, however, the rise was caused by an increase of manufactured products transported at a revenue per ton-mile higher than the assumed average of their group; this increase is not eliminated by the correction factor, and, in view of the inadequacy of available data, cannot be.

It is difficult to judge the quantitative importance of this factor. While no correction can be made for the changes within each major commodity category, these shifts are undoubtedly not all in the same direction. In consequence the errors offset one another to some extent. It is improbable, however, that changes in the composition of each of the major categories of railroad traffic, due both to the evolution of the national economy and to the development of rival forms of transportation, are sufficiently random in character for the effects to cancel out entirely.

(b) Originating tonnage of various commodities is not necessarily in the same proportion as the ton-miles of those commodities. The effect of this is to assign greater weight in the index to the commodity groups with the shorter hauls (and hence higher revenues per ton-mile) than would be the case if adequate data were available for the ton-mile significance of each group.

(c) The commodity statistics were taken from the data for Class I railroads only. If Class II and III railroads were included, the result would undoubtedly be somewhat different. Class II and III railroads probably originate and carry a larger proportion of bulky, low revenue traffic. But they carry only a small proportion of the total traffic in any case, and cannot affect the results substantially.

The quantitative significance of these various defects in the adjusted index cannot be accurately determined from existing data. To a certain extent the direction of error seems clear. There seems little doubt, for example, that the length of haul has increased in part by virtue of the loss of short-haul traffic to motor trucks, and that the imperfect adjustment in this respect tends to overstate declines in rate levels. The opposite effect may result from inadequate allowances for other imperfections described above. All that is claimed for this adjusted index is that it shows the direction of error in the unadjusted revenue per ton-mile index of freight rates, and gives some indication of the probable extent of that error. Moreover, its behavior seems to show more accurately the effect of the major freight rate level cases decided by the Interstate Commerce Commission during the 1930's<sup>5</sup> than

does the unadjusted index of average revenue per ton-mile.

The use of an average freight rate index necessarily obscures the highly divergent behavior of thousands of particular class and commodity rates which together constitute the rate structure. Among agricultural commodities, for example, a striking contrast exists between the generally stable behavior of livestock rates, and rates on cotton which declined over 40 percent from 1926 to 1935.<sup>6</sup> As stated by the Interstate Commerce Commission in 1933, "The lowering of rates, however, has not been uniform, many rates not having been reduced at all since 1922, and others having been reduced as much as 50 percent or more."<sup>7</sup>

Table III shows revenue per passenger-mile and number of passenger-miles for class I railroads, 1911-36. Revenue per passenger mile is believed to be a fairly accurate index of passenger rates. Changes in rates are not perfectly measured by this index. Changes in the distribution of traffic between regular and special-rate travel, between low and high rate areas, and related changes, as well as changes in rates, affect the average revenue per passenger-mile.

Table IV presents an index of fares from 1913, and of fares and volume of traffic from 1917 to 1936, for street railways.

Table V shows indexes of the residential price of manufactured gas, 1913-36, and the volume of residential consumption, 1929-36. The series is not entirely homogeneous. For the period 1923-36, inclusive, it represents data published by the Bureau of Labor Statistics,<sup>8</sup> which are based on the cost of 30.6 and 10.6 therms, respectively, of gas in 25 cities. This thermal basis of prices insures accuracy in the sense that virtually no change is involved in the quality of the service purchased. The amount, 30.6 therms, is deemed characteristic of the use of gas for cooking and water-heating purposes, while 10.6 therms is typical of range use only. To this index has been spliced an earlier index of the Bureau of Labor Statistics of the cost of 3,000 cubic feet of manufactured gas for household use in selected cities.<sup>9</sup> The behavior of the spliced series in overlapping years is so similar that there seems to be little inaccuracy involved in the combination of the two.

Table VI presents data on local telephone rates and use. Unfortunately, there is no available index of telephone rate behavior for the entire United States; an index of local telephone rates for the State of Wisconsin has therefore been used. Prepared from data supplied by the Wisconsin Public Service Commission, it represents the price in some 55 Wisconsin cities, weighted

<sup>5</sup> *The 15 Percent Case*, 1931, 178 I. C. C. 539, 179 I. C. C. 215, and 191 I. C. C. 361, permitted emergency increases in freight charges beginning Jan. 4, 1932. Again, in *Emergency Freight Charges*, 1935, 208 I. C. C. 4 and 215 I. C. C. 439 (1936), the Interstate Commerce Commission permitted emergency increases in freight rates until December 31, 1936. The effects of later adjustments, of course, are not relevant to this record which ends with 1936.

<sup>6</sup> U. S. Department of Agriculture, *Agricultural Statistics*, 1936, p. 407.

<sup>7</sup> General Rate Level Investigation, 1933, 195 I. C. C. 5 (1933), p. 67.

<sup>8</sup> *Changes in the Retail Price of Gas, 1923-36*, Bulletin 628, Washington, 1936.

<sup>9</sup> Bureau of Labor Statistics, *bulletins on Retail Prices*, annual.

according to population and class of residential telephone service. The index, while representing rate behavior in only one State, is believed to be fairly representative, particularly for the period since the War. The rate behavior shown in this index checks with the following comment in the congressional report on communications companies:

From information available, the trend of rate changes of all telephone companies during the 11-year period from January 1, 1922, to December 31, 1932, was upward, in the case of local exchange rates. Most of the increases, however, occurred during the first 5 years of this period, or during the years 1922 to 1926, inclusive. An upward movement in toll rates also occurred during the years 1922 to 1926, inclusive, followed by some reductions. It is significant that, since 1929, rates, for the most part, have been stationary \* \* \*

Approximately 1,034 rate changes were made by the 22 large regional telephone companies of the Bell System during the 11-year period from January 1, 1922, to December 31, 1932, 797 of the changes affecting local rates and 237 of the changes affecting toll rates. Approximately 501 of the changes affecting local rates were in the nature of increases and approximately 296 were reductions. Of the 237 changes affecting toll rates approximately 83 were in the nature of increases and 154 were reductions. Thirty-seven of the rate reductions were involuntary.

The effect of these rate changes was an upward revision of rates, as hereinbefore pointed out with reference to most telephone companies, increases having been accomplished principally during the years 1922 to 1926, inclusive.<sup>10</sup>

A further check was obtained by examining the annual reports of the American Telephone & Telegraph Co. for the years 1930 to 1934, inclusive. If one takes account of all the rate reductions referred to in these reports and includes as reductions all cases referred to as pending before courts or commissions, the resultant reduction amounts to less than 2 percent of the total operating revenues of the Bell System in 1934.

A sample index of pipe line rates on crude petroleum is presented in table VII. The index is based on the rates charged by the Sinclair Pipe Line Co. and its predecessor companies between points in Oklahoma and Kansas in the mid-continent field to Whiting (Chicago refining district), Wood River (St. Louis district), and Cleveland. The rates to these points have been combined in a simple arithmetic average. While restricted in its composition, the index is believed to be fairly representative of pipe line rate behavior from the important mid-continent field to northeastern points. A similar, but somewhat more inclusive, tabulation was employed by the Federal Trade Commission in 1927.<sup>11</sup> There seems to be a high degree of uniformity in the movement of pipe line rates on crude petroleum. The index presented, however, is not representative of the movement of crude oil from the Gulf Coast to eastern refining points by waterway shipment, nor is it necessarily representative of

pipe line rates in the California and other producing areas.

The data on the price of electricity presented in tables VIII and IX represent the average cost of 25, 100, and 250 kilowatt-hours in selected cities; the Federal Power Commission deems these amounts representative of the use of electricity for lighting and small appliances, plus refrigeration and for these two plus cooking, respectively.<sup>12</sup> The data for 1924-1936 are taken from the Commission's study of rate trends in 132 cities of 50,000 or more population.<sup>13</sup> To these price series have been spliced data drawn from a study by Mr. W. G. Vincent<sup>14</sup> of rate trends in the 51 cities included in an index formerly compiled by the Bureau of Labor Statistics.<sup>15</sup> The methods employed in Mr. Vincent's study are said to be identical with those used by the Federal Power Commission.<sup>16</sup> While the number of cities is smaller, this study includes approximately 80 percent of the population covered in the report of the Commission. The latter investigation shows a somewhat sharper downward trend in the overlapping years 1924-36 than does the Vincent study.

The index of the price of 25 kilowatt-hours is applicable to the largest number of residential users, although due to the promotional character of electric rate structures, it is a less sensitive index than those for 100 and 250 kilowatt-hours. Each of these average price indexes conceal many variations in rate behavior.<sup>17</sup> During the 1930's the reductions in residential rates appear to have been greater than those for either commercial or industrial power.<sup>18</sup>

<sup>10</sup> *Petroleum Industry, Prices, Profits, and Competition*, 70th Cong., 1st sess., S. Doc. 61, Washington, 1928, pp. 36, et. seq.

<sup>11</sup> *Trends in Residential Rates*, Washington, 1937, p. 21.

<sup>12</sup> *Ibid.*, p. 21. These cities contain a population of 37,533,000—88 percent of the population of cities of 50,000 or more inhabitants, and 46 percent of the urban population in communities of 2,500 or more inhabitants.

<sup>13</sup> "Rate Reductions," *Edison Electric Institute Bulletin*, June 1936, p. 217. Mr. Vincent is a vice president of the Pacific Gas and Electric Company.

<sup>14</sup> The Bureau now publishes in its retail price bulletins the price of specified typical amounts of electricity in selected cities. The older index was based upon the price of varying most popular consumption amounts of electricity. Inasmuch as electricity rates vary with consumption volume, this method is inadequate as a measure of rate changes only.

<sup>15</sup> The average is weighted according to the population of the cities in 1930; their total population in that year approximated 30,000,000. Three cities were omitted, 1906-16. "In order to determine the trend of domestic rates over a long period I secured for each of the 51 cities listed . . . the amount charged in that city for the same monthly consumption (domestic) used by the Federal Power Commission in its rate survey and under the same specifications, as of Jan. 1 of each year." W. G. Vincent, *op. cit.* The data were secured directly from the companies, p. 224.

<sup>16</sup> A careful measurement of price reductions for specified quantities of electricity from 1930 to 1933 is presented by L. G. Cannon and D. F. Estes, "The Trend of Electric Utility Rates: 1930-33," *Journal of Land and Public Utility Economics*, November 1934, p. 339. The material presented in this article shows reductions of 4.6, 6.4, and 8.8 percent in the cost of 25, 50, and 100 kilowatt-hours, respectively, of residential consumption. Reductions in the cost of 100 kilowatt-hours ranges from no change to as high as 30 percent (Delaware) in the various States.

<sup>17</sup> In the commercial or small power market reductions were 5.3, 6.3, and 4.6 percent for 145, 1,440, and 4,300 kilowatt-hours, respectively. In the case of industrial or large light and power, the decreases were 2.1, 3.2, and 4.2 percent for quantities of 7,200, 48,000, and 432,000 kilowatt-hours, respectively. Again there was a great deal of divergence in rate behavior between the several States. *Ibid.*

<sup>18</sup> 784 Cong., 2d sess., H. R. 1273, part 11, N. 1, Washington, 1934, pp. 932 to 933.

Table X shows postal rates from 1919 to 1936 and volume of postal matter carried from 1927 to 1936.

Table XI shows for scheduled air transport revenue per passenger-mile, passengers, and passenger-miles, 1926-36.

TABLE I.—Percent change in price and consumption of selected public utility services, 1929, 1932, 1936<sup>1</sup>

Type of service	Index of price			Index of consumption		
	[1929=100]			[1929=100]		
	1929	1932	1936	1929	1932	1936
Railroad freight.....	100.0	101.9	96.2	100.0	52.3	75.8
Railroad passenger.....	100.0	79.0	65.5	100.0	54.6	72.1
Street railways.....	100.0	103.3	102.9	100.0	68.8	69.9
10.6 therms manufactured gas.....	100.0	99.8	100.2	100.0	94.0	79.7
Residential telephone service <sup>2</sup> .....	100.0	101.2	100.8	100.0	84.5	87.1
Pipe lines.....	100.0	100.0	87.9	100.0	(9)	(9)
25-kw-hr. electricity <sup>3</sup> .....	100.0	96.6	86.7	100.0	120.7	136.5
Postal service.....	100.0	115.7	123.0	100.0	77.6	82.4
Air passenger service <sup>4</sup> .....	100.0	50.8	47.5	100.0	354.8	1,217.2

<sup>1</sup> Derived from subsequent tables. Consumption indexes are not strictly comparable to price indexes, but provide a rough basis of comparison. It is not implied, however, that changes in consumption are due solely, or even largely, to changes in price.

<sup>2</sup> Price data for Wisconsin only; consumption data for the entire national Bell Telephone System, and connecting lines.

<sup>3</sup> Price index from Table VIII, is for 25 kilowatt-hours.

<sup>4</sup> Not available.

<sup>5</sup> Passenger-miles in 1929 estimated by assuming average miles per passenger same as in 1930.

TABLE II.—Index numbers of adjusted and unadjusted revenue per ton-mile, and of revenue ton-miles, all steam railroads, 1900-36<sup>1</sup>

Year ended	[1926=100]		
	Revenue per ton-mile	Adjusted revenue per ton-mile <sup>2</sup>	Revenue ton-miles
<i>June 30</i>			
1900.....	66.5	56.6	31.6
1901.....	68.4	59.3	32.9
1902.....	69.1	57.8	33.2
1903.....	69.6	58.2	38.7
1904.....	71.2	59.8	39.0
1905.....	69.9	58.8	41.7
1906.....	68.3	58.0	45.2
1907.....	69.3	59.5	52.0
1908.....	68.8	61.0	45.8
1909.....	69.6	61.3	48.9
1910.....	68.7	61.2	57.0
1911.....	69.1	60.7	56.7
1912.....	67.9	59.9	59.0
1913.....	69.5	58.9	67.4
1914.....	67.2	59.8	64.6
1915.....	67.1	59.1	61.9
1916.....	65.6	59.1	76.8
<i>Dec. 31</i>			
1916.....	65.6	59.8	81.8
1917.....	89.4	82.2	88.3
1918.....	78.7	74.7	91.4
1919.....	90.1	84.8	82.1
1920.....	97.5	93.4	92.5
1921.....	118.1	111.8	69.2
1922.....	108.9	103.2	76.5
1923.....	103.3	100.2	93.0
1924.....	103.3	100.2	87.6
1925.....	101.6	99.6	93.3
1926.....	100.0	100.0	100.0
1927.....	99.9	100.0	96.6
1928.....	99.8	100.1	97.5
1929.....	99.3	100.0	100.0
1930.....	98.0	98.8	86.2
1931.....	96.9	99.9	69.5
1932.....	96.4	101.9	52.6
1933.....	92.1	98.0	56.0
1934.....	90.2	95.8	60.4
1935.....	91.1	97.7	63.4
1936.....	89.8	96.2	76.3

<sup>1</sup> Railroad data were compiled from Interstate Commerce Commission, *Statistics of Railroads in the United States*, Washington, annual.

<sup>2</sup> Average revenue per ton-mile, adjusted for changes in average length of haul and for changes in the commodity composition of traffic, as described in accompanying text.

TABLE III.—Average revenue per passenger-mile and number of passenger-miles, class I railroads, 1911-36<sup>1</sup>

[1926=100]												
Year ended	Revenue per passenger-mile (cents)					Passenger-miles (000's)						
	Total	Index	Noncommutation	Index	Commutation	Total	Index	Noncommutation	Index	Commutation	Index	
June 30												
1911.....	1.96	66.7	.....	.....	.....	32,371,445	91.2	.....	.....	.....	.....	
1912.....	1.98	67.3	.....	.....	.....	32,316,263	91.1	.....	.....	.....	.....	
1913.....	2.00	68.0	.....	.....	.....	33,875,096	95.5	.....	.....	.....	.....	
1914.....	1.98	67.3	.....	.....	.....	34,596,985	97.4	.....	.....	.....	.....	
1915.....	1.98	67.3	.....	.....	.....	31,789,928	89.6	.....	.....	.....	.....	
1916.....	2.00	68.0	.....	.....	.....	33,645,908	94.8	.....	.....	.....	.....	
Dec. 31												
1916.....	2.04	69.4	.....	.....	.....	34,585,952	97.5	.....	.....	.....	.....	
1917.....	2.09	71.1	.....	.....	.....	39,476,859	111.3	.....	.....	.....	.....	
1918.....	2.41	87.0	.....	.....	.....	42,676,579	120.3	.....	.....	.....	.....	
1919.....	2.54	80.4	.....	.....	.....	46,358,304	130.7	.....	.....	.....	.....	
1920.....	2.74	93.2	.....	.....	.....	46,848,668	132.1	.....	.....	.....	.....	
1921.....	3.09	103.1	.....	.....	.....	37,312,586	105.2	.....	.....	.....	.....	
1922.....	3.03	103.1	3.13	102.4	1.10	97.3	35,463,962	100.0	29,381,998	101.7	6,131,784	92.8
1923.....	3.02	102.7	3.41	101.8	1.09	96.5	37,356,905	107.0	31,097,400	109.4	6,400,779	96.9
1924.....	2.98	101.4	3.78	100.9	1.10	97.3	36,090,885	101.7	29,716,926	102.8	6,106,831	97.0
1925.....	2.94	100.0	3.34	99.7	1.11	98.2	35,950,223	101.3	29,767,767	101.6	6,592,186	99.8
1926.....	2.94	100.0	3.35	100.0	1.13	100.0	35,477,525	100.0	28,894,554	100.0	6,193,623	100.0
1927.....	2.90	98.6	3.34	99.7	1.11	98.2	33,649,706	94.8	27,066,452	93.7	6,649,871	100.7
1928.....	2.87	96.9	3.37	98.8	1.11	98.2	31,601,342	89.1	24,900,575	86.5	6,625,723	100.3
1929.....	2.81	95.5	3.29	98.2	1.11	98.2	31,074,135	87.6	24,190,151	84.7	6,808,473	104.4
1930.....	2.72	92.7	2.77	97.1	1.09	96.5	26,814,822	77.6	20,154,997	69.8	6,506,110	101.0
1931.....	2.51	87.4	3.09	91.3	1.06	93.8	21,894,421	61.7	15,876,665	54.9	6,017,959	91.1
1932.....	2.22	77.5	2.70	80.6	1.07	91.7	16,971,044	47.8	11,988,137	41.5	4,985,708	77.7
1933.....	2.11	74.4	2.71	79.1	1.08	93.6	16,340,510	46.1	12,035,444	41.7	4,308,295	65.2
1934.....	1.92	67.3	2.43	73.1	1.09	96.5	18,633,300	50.8	13,873,079	48.0	4,193,032	63.6
1935.....	1.93	67.6	2.18	67.1	1.09	96.5	18,475,572	52.1	14,357,441	49.7	4,118,133	62.4
1936.....	1.84	62.6	2.02	60.3	1.06	93.8	22,416,061	63.2	18,228,350	63.1	4,187,710	63.4

<sup>1</sup> Computed from Interstate Commerce Commission, *Statistics of Railroads in the United States*, Washington, annual. The 1936 data are from the Commission's monthly statement, *Revenue Traffic Statistics of Class I Steam Railroads*, December 1936.

TABLE IV.—Street-railway fares and passenger volume, 1913-36

[Indexes 1926 = 100]				
Year	Fares		Number of passengers <sup>3</sup>	
	American Transit Association		In thousands	Index
	Average fare (cents) <sup>1</sup>	Index of fares		
1913			65.8	
1914			65.8	
1915			65.9	
1916			65.9	
1917	5.048	66.8	14,506,915	95.3
1918	5.633	74.5	14,243,415	93.6
1919	6.278	82.1	14,915,994	98.0
1920	7.027	93.0	15,540,715	102.1
1921	7.258	96.4	14,574,439	95.7
1922	7.311	96.7	15,331,400	100.7
1923	7.136	94.4	15,659,000	102.8
1924	7.343	97.1	15,512,000	100.6
1925	7.445	98.5	15,167,000	99.6
1926	7.559	100.0	15,225,000	100.0
1927	7.649	101.2	14,691,435	97.9
1928	7.847	103.8	14,521,000	95.4
1929	8.012	106.0	14,368,000	94.3
1930	8.402	111.2	13,088,000	86.0
1931	8.196	108.4	11,611,000	79.3
1932	8.212	108.6	9,888,535	64.9
1933	8.153	107.9	9,285,500	61.0
1934	8.139	107.7	9,778,300	64.2
1935	8.110	107.3	9,729,000	63.9
1936		106.4	10,058,000	65.9

<sup>1</sup> This is an unweighted average of monthly cash fares for street railway or bus service in cities of 25,000 or more population. There is a variation in the number of cities in 1932, 320 cities were included, while in 1936 there were 288. The data are compiled by the American Transit Association, formerly the American Street Railway Association, and are published in the annual supplement of the *Survey of Current Business*, U. S. Department of Commerce, Washington.

<sup>2</sup> An average, including all cities of 50,000 or more population, except New York. The average is weighted according to population, the 1930 census having been used back to 1926. Prepared by Mr. Richey, an engineer, this series appears in *Mood's Public Utilities*. It is here changed from Richey's base, 1913, to a 1926 base.

<sup>3</sup> These data are taken from *Mood's Public Utilities*. The statistics for 1917, 1922, 1927 and 1932 are from the *Census of Street Railways*; the statistics for the remaining years were obtained from the American Transit Association.

TABLE V.—Index numbers of residential price of typical amounts of manufactured gas in 25 cities 1913-26;<sup>1</sup> total and per customer residential consumption of manufactured and mixed gas in identical cities, 1929-36;<sup>2</sup>

Year	Price indexes			Consumption	
	3,000 cubic feet	10.6 therms	30.6 therms	Total residential consumption (millions of cubic feet)	Per capita residential consumption (millions of cubic feet)
1913	77.6	(1)	(1)		
1914	77.5	(1)	(1)		
1915	76.0	(1)	(1)		
1916	75.1	(1)	(1)		
1917	74.3	(1)	(1)		
1918	72.6	(1)	(1)		
1919	81.9	(2)	(1)		
1920	89.0	(2)	(1)		
1921	107.0	(1)	(1)		
1922	103.7	(1)	(1)		
1923	102.1	100.2	100.2		
1924	101.2	100.6	100.3		
1925	100.5	100.5	100.2		
1926	100.0	100.0	100.0		
1927	99.6	100.0	99.8		
1928	99.2	100.1	99.4		
1929	99.2	100.0	99.2	255,841	28.0
1930	98.2	100.7	98.2	257,583	27.7
1931	93.9	100.0	97.5	253,008	27.2
1932	93.9	99.8	95.1	240,495	26.7
1933	93.1	99.0	93.0	223,110	25.7
1934	93.1	99.2	93.0	216,507	24.6
1935	(1)	100.8	94.4	207,451	23.2
1936	(1)	100.2	91.9	204,007	22.6

<sup>1</sup> Price indexes based on thermal quantities from U. S. Bureau of Labor Statistics, bulletin No. 628, *Changes in Retail Prices of Gas, 1923-36*. Washington, 1937.

<sup>2</sup> Compiled from data in the *Annual Statistics of the Manufactured Gas Industry*, American Gas Association, New York, 1937.

<sup>3</sup> Not available.

TABLE VI.—Amounts and index numbers of Wisconsin residential telephone rates and of national usage, 1913-36<sup>1</sup>

Year	[1926=100]			
	Wisconsin telephone rates		Telephones per 1,000 United States population	
	Rates	Index	Number	Index
1913	\$1.83	75.3	81.3	55.9
1914	1.83	75.3	88.3	58.6
1915	1.83	75.3	92.3	61.2
1916	1.76	72.9	61.8	61.8
1917	1.72	72.8	102.5	68.0
1918	1.77	72.8	106.1	70.4
1919	1.80	74.1	112.3	74.5
1920	2.03	85.3	118.3	78.4
1921	2.10	86.1	123.7	82.0
1922	2.37	97.5	127.9	84.8
1923	2.37	97.5	134.5	89.2
1924	2.28	97.9	140.5	94.6
1925	2.29	98.4	145.6	96.6
1926	2.43	100.0	150.8	100.0
1927	2.45	100.8	155.4	103.1
1928	2.46	101.2	160.2	106.2
1929	2.46	101.2	164.2	108.9
1930	2.47	101.6	163.3	108.3
1931	2.47	101.6	157.9	104.7
1932	2.49	102.3	158.8	102.0
1933	2.49	102.3	132.3	87.7
1934	2.48	102.2	132.7	88.0
1935	2.48	102.1	136.1	90.3
1936	2.48	102.0	143.0	94.8

<sup>1</sup> Rates were compiled from data supplied by the Wisconsin Public Service Commission, representing a weighted average of 51 cities and three types of service. Telephone usage data were computed from number of telephones owned by and connected with the Bell system and annual population estimates, both of which are published in U. S. Department of Commerce *Statistical Abstract* annually.

TABLE VII.—Pipe-line rates on crude petroleum from Oklahoma and Kansas points to major refining centers, 1915-36<sup>1</sup>

[1926=100]							
Year	Index of 100- weighted average	Cleveland <sup>1</sup>		St. Louis <sup>2</sup>		Whiting <sup>3</sup>	
		Cents per barrel	Index	Cents per barrel	Index	Cents per barrel	Index
1915	91.8	58	92.8	34	91.3	42	91.3
1916	91.8	58	92.8	34	91.3	42	91.3
1917	91.8	58	92.8	34	91.3	42	91.3
1918	91.8	58	92.8	34	91.3	42	91.3
1919	91.8	58	92.8	34	91.3	42	91.3
1920	123.7	72.50	116.0	52.50	140.9	52.50	114.1
1921	123.7	72.50	116.0	52.50	140.9	52.50	114.1
1922	100.5	63.50	101.6	37.25	100.0	46	100.0
1923	100.5	63.50	101.6	37.25	101.0	46	100.0
1924	100.5	63.50	101.6	37.25	100.0	46	100.0
1925	100.5	63.50	101.6	37.25	100.0	46	100.0
1926	100.0	62.50	100.0	37.25	100.0	46	100.0
1927	100.0	62.50	100.0	37.25	100.0	46	100.0
1928	100.0	62.50	100.0	37.25	100.0	46	100.0
1929	100.0	62.50	100.0	37.25	100.0	46	100.0
1930	100.0	62.50	100.0	37.25	100.0	46	100.0
1931	100.0	62.50	100.0	37.25	100.0	46	100.0
1932	100.0	62.50	100.0	37.25	100.0	46	100.0
1933	100.0	62.50	100.0	37.25	100.0	46	100.0
1934	87.9	57	88.0	32.25	86.6	41	89.1
1935	87.9	55	88.0	32.25	86.6	41	89.1
1936	87.9	55	88.0	32.25	86.6	41	89.1

<sup>1</sup> Compiled from tariffs filed with the Interstate Commerce Commission by the Sinclair Prairie Pipe Line Company, and predecessor and related companies. The rates are for trunk-line movements only; gathering charges are excluded. For years 1923-36, inclusive, origin points in Texas are included under blanket tariffs for Oklahoma, Kansas, and Texas origin points.

<sup>2</sup> To Wood River, adjacent to St. Louis.

<sup>3</sup> In the Chicago refining area. In 1932-36 the tariff used is to East Chicago, adjacent to Whiting.

TABLE VIII.—Average price per kilowatt-hour for residential consumption of 25, 100, and 250 kilowatt-hours of electricity in cities of 50,000 or more population; total residential consumption and kilowatt-hours per consumer in the United States, 1924-1936<sup>1</sup>

[1926=100]

Year <sup>2</sup>	Average price per kilowatt-hour (cents) <sup>3</sup>						Consumption			
	25 kw.-hr.		100 kw.-hr.		250 kw.-hr.		Residential consumption in kw.-hr.		Kilowatt-hour per consumer per year	
	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index
1913.....									264	61.7
1914.....									268	62.6
1915.....									260	60.7
1916.....									265	61.9
1917.....									268	62.6
1918.....									272	63.6
1919.....									293	68.5
1920.....							2,950,000	43.9	339	79.2
1921.....							3,275,000	48.7	347	81.1
1922.....							3,670,000	54.6	359	83.9
1923.....							4,420,000	65.7	368	86.0
1924.....	7.7	103.2	6.2	105.6	5.3	106.3	5,270,000	78.3	378	88.3
1925.....	7.5	101.0	6.0	102.5	5.2	103.0	5,950,000	88.2	398	93.0
1926.....	7.4	100.0	5.9	100.0	5.0	100.0	6,727,605	100.0	428	100.0
1927.....	7.2	97.3	5.6	95.4	4.8	95.0	7,538,338	112.1	444	103.7
1928.....	7.0	94.6	5.3	91.2	4.5	89.5	8,418,628	125.2	466	108.9
1929.....	6.9	93.0	5.1	87.6	4.3	85.0	9,525,725	141.6	477	111.4
1930.....	6.8	91.3	5.0	85.1	4.2	82.6	10,702,475	159.1	548	128.0
1931.....	6.8	90.8	4.7	80.7	3.8	76.2	11,372,580	169.1	580	135.5
1932.....	6.7	89.8	4.7	79.4	3.8	74.9	11,495,802	170.9	597	139.5
1933.....	6.5	87.6	4.6	78.2	3.7	73.6	11,358,806	168.9	593	138.6
1934.....	6.3	84.9	4.5	76.3	3.6	71.4	12,232,748	181.9	624	145.8
1935.....	6.2	83.0	4.3	73.9	3.3	66.9	13,496,232	200.6	669	156.3
1936.....	6.0	80.6	4.2	71.4	3.1	61.6	14,908,000	221.6	719	168.0

<sup>1</sup> Price data compiled from Federal Power Commission, *Trends in Residential Rates from 1924 to 1936*, Washington, 1937. Total consumption data from Edison Electric Institute, *Statistical Bulletin* No. 4, New York, 1937, for years 1926-36; for earlier years data are those appearing in *Moody's Public Utilities, the Electrical World* being credited as the source. Average consumption data were compiled from the Edison Electric Institute, cited above.

<sup>2</sup> The price data for the years 1924-34 are as of October 1. The 1935 price is an average of the prices for Jan. 1, 1935 and Jan. 1, 1936; the 1936 price is that for July 1, 1936.

<sup>3</sup> The data are averages weighted according to population, for 150 utilities operating in 132 cities, which include 88 percent of the population in the cities of 50,000 or more persons. The cities included contain 46 percent of the population living in communities of 250 or more persons. Page 21 of the report cited above. "When two or more utilities serve in the same city, the rates of each of the utilities for which this city is the 'major' city served by the utility are shown, and as a result the bills of 150 utilities are reported for the 132 cities."

TABLE IX.—Amount and index numbers of average price per kilowatt-hour for residential consumption of 25, 100, and 250 kilowatt-hours of electricity, 51 cities in the United States: 1906-36<sup>1</sup>

[1926=100]

Year	25 kw.-hr.		100 kw.-hr.		250 kw.-hr.	
	Amount	Index	Amount	Index	Amount	Index
1906.....	11.1	154.2	10.3	183.9	9.9	194.1
1907.....	10.6	147.2	9.9	176.8	9.5	186.3
1908.....	10.5	145.8	9.7	173.2	9.3	182.4
1909.....	10.1	140.3	9.4	167.9	9.0	176.5
1910.....	10.1	140.3	9.2	164.3	8.8	172.5
1911.....	10.0	138.9	8.7	155.4	8.5	166.7
1912.....	9.5	131.9	8.5	151.8	8.3	162.7
1913.....	9.1	126.1	8.0	142.9	7.8	152.9
1914.....	8.9	123.6	7.7	137.5	7.4	145.1
1915.....	8.8	122.2	7.6	135.7	7.3	144.1
1916.....	8.5	115.3	6.9	127.2	6.5	127.5
1917.....	7.6	105.6	6.2	110.7	5.9	115.7
1918.....	7.5	104.2	6.0	107.1	5.7	111.8
1919.....	7.2	105.6	6.1	108.9	5.6	109.8
1920.....	7.7	106.9	6.0	107.1	5.6	109.8
1921.....	8.0	111.1	6.3	112.5	5.8	113.7
1922.....	7.8	108.3	6.1	108.9	5.7	111.8
1923.....	7.6	105.6	6.1	108.9	5.7	111.8
1924.....	7.4	104.2	5.8	103.6	5.4	105.9
1925.....	7.4	102.8	5.7	101.8	5.2	102.0
1926.....	7.2	100.0	5.6	100.0	5.1	100.0
1927.....	7.2	100.0	5.5	98.2	5.0	98.0
1928.....	7.0	97.2	5.3	94.6	4.8	94.1
1929.....	6.8	94.4	5.2	92.9	4.5	88.2
1930.....	6.7	93.1	5.0	89.3	4.3	84.3
1931.....	6.6	91.7	4.9	87.5	4.2	82.4
1932.....	6.6	91.7	4.6	82.1	3.8	74.5
1933.....	6.5	90.3	4.5	80.4	3.8	74.5
1934.....	6.3	87.5	4.5	78.6	3.7	72.5
1935.....	6.2	85.1	4.4	76.6	3.6	70.6
1936.....	6.0	83.3	4.2	75.0	3.1	60.8

<sup>1</sup> The price data were presented by Vice President W. G. Vincent of the Pacific Gas and Electric Company in an article entitled "Rate Reductions," *Edison Electric Institute Bulletin*, June 1936. The 51 cities are those that were employed by the Bureau of Labor Statistics in its computation (discontinued November 1934) of the cost of most popular consumption units of electricity, appearing in its retail price bulletins; the method followed duplicates that of the Federal Power Commission in its computation of typical bills.

TABLE X.—Index numbers of United States postal rates and amounts and index numbers of pounds of matter carried; 1919-35.<sup>1</sup>

[1926=100]

Year <sup>2</sup>	Index of Postal rates	Pounds of postal matter	
		Amount (100,000,000's)	Index 1927=100
1919.....	93.9		
1920.....	94.6		
1921.....	95.1		
1922.....	95.4		
1923.....	95.4		
1924.....	95.8		
1925.....	97.6		
1926.....	100.0		100.0
1927.....	100.9	6,356	100.0
1928.....	100.1	6,416	100.9
1929.....	99.3	6,490	102.1
1930.....	99.3	6,701	105.5
1931.....	99.3	6,043	95.1
1932.....	114.9	5,040	79.3
1933.....	126.5	4,345	68.4
1934.....	122.3	4,233	66.6
1935.....	122.1	4,578	72.0
1936.....	122.1	5,350	84.1

<sup>1</sup> Postal rates computed from U. S. Post Office Department *Postage Rates, 1788-1930, Abstracts of Laws Passed and Ibid*, annual supplements, 1931-36; a weighted average was used. Pounds of matter carried compiled from U. S. Post Office Department *Reports of the Postmaster General*, annually. See *Patterns of Resource Use*, National Resources Committee, 1938, p. 95.

<sup>2</sup> Adjusted from the fiscal to calendar year by a 2-year average.

TABLE XI.—Amount and index numbers of revenue per passenger-mile, of number of passengers, and of passenger miles, scheduled air transport<sup>1</sup>

[1930=100]

Year	Average revenue per passenger-mile		Number of passengers		Passenger miles	
	Amount (cents)	Index	Amount	Index	Amount	Index
1926.....	12.0	144.5	5,782	1.5	(2)	(1)
1927.....	10.6	127.6	8,661	2.3	(4)	(2)
1928.....	11.0	132.5	47,840	12.8	(4)	(2)
1929.....	12.0	144.5	159,751	42.1	(4)	(2)
1930.....	8.3	100.0	374,935	100.0	84,014,372	100.0
1931.....	6.7	80.6	469,981	125.3	106,442,375	126.7
1932.....	6.1	73.4	474,279	126.5	127,688,748	151.2
1933.....	6.1	73.4	493,141	131.5	173,492,119	206.5
1934.....	5.9	71.1	461,743	123.2	187,858,629	223.6
1935.....	5.7	68.6	746,946	199.2	313,965,508	373.6
1936.....	5.7	68.6	1,020,931	272.3	435,740,253	518.7

<sup>1</sup> Compiled from the *Air Commerce Bulletin*, U. S. Department of Commerce, Washington, June 15, 1937, pp. 262-264.

<sup>2</sup> Not available.

## APPENDIX 5.<sup>1</sup>—THE RELATION OF TARIFFS TO THE PRICE STRUCTURE

In the following tables, the relation between tariffs and wholesale prices is set forth in the effort to throw light on the effects of tariffs upon price behavior. In presenting the rates contained in the tariff schedules, note should be made of factors other than the height of the protection afforded by the rates which may affect the importation of goods.

It is convenient to group the more disguised protective measures which act along with and in addition to the custom duties themselves, under the title of "administrative" protection.<sup>2</sup> Here we find that the administration of customs, formalities, rules regarding marks of origin, veterinary and sanitary regulations, food and drug regulations, laws concerning the assessment of ad valorem duties, and the process of classification of imports all contribute to the national policy of controlling the flow of goods in international trade. Instances can be cited where the charges for the formalities at the custom border have more than doubled the ad valorem equivalent of the statutory tariff rate.<sup>3</sup> Also, many times in many different countries the shibboleth of public health has been used to justify actual prohibition or discrimination in regard to imports of food and similar products.<sup>4</sup> Another, but quite different, form of administrative protection arises out of the technical problem of classifying goods for entry. The gamut of "commercial designation," "legislative intent," "chief use," "in chief value of," "similitude clause," etc., must be run and during such procedure imports may be held up indefinitely.<sup>5</sup> In fact, the uncertainty involved in the awaited decision as well as the cost of bond, etc., may inhibit importation more than if an even higher but certain rate had been applied in the first case.

It seems pertinent to point out that in some cases a very low tariff rate on one commodity will furnish more protection than a high rate (ad valorem equivalent) on another commodity. In a situation where there is a slight or no difference between the imported cost and the cost of the domestic article a very low ad valorem rate might give much more protection than a consider-

ably higher rate levied on another commodity which had a large differential of disadvantage to the foreign-made goods. A usual type of this sort of thing occurs where the cost of transportation of one commodity is much greater per unit of dollar value than the cost of transportation of another article.<sup>6</sup>

Another factor which complicates a study of the relationship between the tariff and prices is one which arises out of the existence of both ad valorem and specific customs rates in the United States tariff schedules. The specific duty, which is a fixed sum of money to be paid on some stated unit of quantity of a commodity, presents more difficulties in this analysis than the ad valorem rate, which is a fixed percentage of the value of the imported article. The specific rate acts as a regressive tax in the case where there are several qualities of a commodity imported, i. e., the cheaper qualities tend to get a greater amount (percentage) of protection per unit of value than the more expensive items. In some cases this is offset in part by levying a larger specific duty on the dearer goods and to the extent that such a procedure is followed the specific duty approaches the ad valorem duty in character. It is also of great significance that the weight of the specific duty varies inversely with the price level and particularly that it varies inversely with the price changes of the commodity upon which it is levied. It is true, of course, that the ad valorem type of duty presents difficult problems of appraisement and therefore considerable room for the operation of administrative protection activities. However, its very percentage character prevents it from having such a fluctuating protective role as the specific duty.

In spite of these difficulties, a comparison of wholesale prices<sup>7</sup> in the United States with the tariff protection of the commodities to which the prices refer should throw some light on the relation between price behavior and protection. In order that this material might be in such form as to reveal any possible connection between tariff rates and price flexibility, the wholesale prices have been arranged in groups according to their relative frequency of change and their relative magnitude of change. For this purpose, the procedure described in Appendix 2 and the groupings shown in tables II and

<sup>1</sup> Appendix 5 was prepared by Edward C. Welsh.

<sup>2</sup> Cf. E. M. Winslow, *Administrative Protectionism, Explorations in Economics*, McGraw-Hill Book Co., Inc., N. Y., 1937; also Josef Grunwald, *Economic Protectionism*, 1916; also, B. A. Levett, *Through the Customs Maze*, N. Y., 1928.

<sup>3</sup> For instance, on a port cargo of less than 200 tons destined for Portuguese West Indies, the following consular charges were levied (in English pounds): Rotterdam 4, Antwerp 2, Dunkerque 1, Middlesborough 2, Hull 2, London 2, 1.10, Port Said, 1, Suez, 4. See *World Trade*, I, C. C., April 1932.

<sup>4</sup> Cf. *World Trade Barriers in Relation to America Agriculture*, Senate Document No. 70, 1933; Sir Frederick Leith-Ross, "Report of the Economic Committee of the League of Nations on Agricultural Protectionism," *Board of Trade Journal* (Gr. Br.) London, May 1937, etc.

<sup>5</sup> Cf. "American Importer," November 1934; September 1934; *World Trade*, May 1932; C. S. *Customs Encyclopedia*, 1934, etc.

<sup>6</sup> For instance, a case of South African apples, weighing 46 pounds, was sent from London to the continent of Europe, a distance of 650 miles. The invoice value was \$1.64 and total cost was \$6.32. Transport costs were 75.76 percent of total costs. Imports of certain commodities, such as cement and certain fresh vegetables, are restricted to certain areas of a country, usually along the coast or border, largely because of the low unit values of such goods and of the high proportion which transportation costs are of total delivered costs. See Doc. No. 180, 72d Cong.

<sup>7</sup> Bureau of Labor Statistics wholesale prices.



III of Appendix 2 were used. In a few instances, items in the Bureau of Labor Statistics wholesale price series which were combined to form a single item in the tables in Appendix 2 carry different tariff rates. In these cases, the separate items are presented in the following tables in place of the composite items which appear in appendix 2 and this fact is noted on the tables.

In table I the items are grouped into 10 groups on the basis of frequency of price change. This grouping corresponds to, and follows the order of Appendix 2, table II.

In table II, the items are grouped into 10 groups on the basis of price sensitivity. This grouping corresponds to, and follows the order of Appendix 2, table III. By reference to Appendix 2, table II, it is possible to see in which sensitivity groups the items in each frequency group are to be found.

The procedure for deriving the tariff rate on items corresponding to the items in the Bureau of Labor Statistics wholesale price series was as follows:

(1) The commodities in the Bureau of Labor Statistics series were checked in order that further information about the particular nature of each item might be obtained. Description, adequate for accurate tariff classification, was not available in every instance.

(2) With this information to be used as a guide, the Tariff Act of 1930 was used for ascertaining the probable paragraph and rate of the tariff applicable to each commodity.

(3) Next, the United States Department of Commerce publication, *Statistical Classification of Imports into the United States* was used as a more accurate check on the tariff rates. In some of the more complicated instances, recent Treasury Decisions of the Customs Court were obtained to clarify problems of classification. The coding system used in the above mentioned Commerce publication was followed and recorded so that each item could be located more readily in further examination.

(4) An arithmetic mean of the annual wholesale prices of each of the 734 items was figured for the years 1930 to 1936 inclusive (the years during which the 1930 tariff act has been in force). The purpose of this average was to aid in more accurate classification of those commodities on which the duties vary according to the value of the item, e. g., "valued not over \$2 a dozen" and "valued over \$2 a dozen" (61548 and 61549). It appeared that an average of these prices over a period of years was a better basis for such classification than the prices for any one year.

(5) Then, by aid of the code numbers obtained in the Department of Commerce publication, further classification checking was done with the more detailed Tariff Commission publication, *Comparative Statistics of Imports Into the United States for Consumption* (11

volumes 1931-35) and also with the annual publication, *Foreign Commerce and Navigation of the United States*.

(6) Each item was then checked to ascertain if and to what extent it was affected by the reciprocal trade agreement changes. Each such change was noted.

(7) Using the afore-mentioned Tariff Commission publication for 1931-35 and the latest publication of the same title for the year 1936, the specific duties were translated into equivalent ad valorem rates for each commodity dutiable at specific rates. In cases of combination rates (both specific and ad valorem) the equivalent ad valorem rate shows such combination. The procedure was as follows: The total amount of duty collected on a particular commodity in each of the years studied was compared with the total value of this commodity imported during this particular year. This gave the ad valorem equivalent for a specific duty levied. In cases where there was a combination (specific and ad valorem) duty levied, the number of items, or the volume imported was multiplied by the specific duty; the percentage which this figure was of the total value imported was derived and that percentage was then added to the ad valorem duty quoted to obtain the ad valorem equivalent of the whole duty. In recording these equivalent ad valorem rates for the years in which the Tariff Act of 1930 has been in force, the spread or range of the rates from high to low years was taken rather than an average, since the fluctuation of the weight of the duty is significant, and also since an average would distort the picture.

Tables I and II show the results of the procedure just listed. Column 2 in the tables gives the code number of the different items as they are listed in the Bureau of Labor Statistics wholesale price series. Column 4 gives the code numbers used for corresponding items in the Department of Commerce publication, *Statistical Classification of Imports into the United States*, and in the Tariff Commission publication, *Comparative Statistics of Imports into the United States for Consumption*. The code numbers are given without decimal points as they are arranged without reference to decimal points in the *Statistical Classification*. Columns 5 and 6 give the paragraph in which the item appears and the rate according to the Tariff Act of 1930. In cases where a rate appears in parentheses the rate so enclosed is the changed rate according to the reciprocal trade agreements. Column 7 gives in terms of ad valorem equivalents the range of protection arising from the variations in price and the modification brought about by rate changes made by trade agreements.

The following tariff classification of these commodities should not be used as a final analysis for importers because of inadequate description of the separate items as well as the existence of changes arising out of trade agreements and Treasury decisions.

TABLE I.—Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931-36, inclusive

## GROUP I

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range
1	97	Corn flakes.....	10917	732	20% (15%)	15-30.
2	99	Wheat cereal.....	10917	732	20% (15%)	15-30.
3	154	Ginger ale.....	17500	808	15¢ gal.	13-17.
4	156	Sodas.....	17760	808	15¢ gal.	13-17.
5	226	Gloves, men's, machine, unlined.....	08110	1532	50% (min.)	62-73.
6	231	Collars, men's soft.....	31135	919	37.5¢	37½.
7	232	Collars, men's stiff.....	31135	919	37.5¢	37½.
8	241	Shirts, men's dress, broadcloth.....	31131	919	45¢	45.
9	793	Underwear, men's, 50 percent wool, 40 percent cotton.....	30371	1144	50¢ lb. and 50¢ (30¢)	15-65.
10	367	Grain binder, 6-foot, with bundle carriage.....	78019	1604	Free	Free.
11	368	Cultivator, riding, 8 shovels, pin break.....	78000	1604	do.	Do.
12	369	Grain drill, 12 by 7, plain single disk.....	78015	1604	do.	Do.
13	370	Engine, 3-horsepower, agricultural implement.....	78019	1604	do.	Do.
14	371	Forks, hay, 3 tines.....	61589	373	30% (15%)	15-30.
15	372	Harrow, disk, 14 by 16, with scrapers.....	78000	1604	Free	Free.
16	373	Harrow, post-tooth.....	78000	1604	do.	Do.
17	375	Combine thresher, 10-foot, motor-driven.....	78000	1604	do.	Do.
18	376	Hoe, garden, 7-inch.....	61589	373	30% (15%)	15-30.
19	377	Hay loader, 6-foot, windrow with carriage.....	78019	1604	Free	Free.
20	378	Mower, 5-foot, regular lift.....	78003	1604	do.	Do.
21	379	Corn picker.....	78019	1604	do.	Do.
22	380	Corn planter, 30-inch open wheels, 80 rods.....	78015	1604	do.	Do.
23	381	Plow tractor, 14-inch.....	78010	1604	do.	Do.
24	385	Rake, 14 teeth, steel.....	61589	373	30% (15%)	15-30.
25	386	Rake, self-dump, 10-foot, 26 teeth.....	78002	1604	Free	Free.
26	387	Rake, side delivery.....	78002	1604	do.	Do.
27	389	Corn sheller, power, 2-hole.....	78015	1604	do.	Do.
28	391	Spade, garden.....	61581	373	30% (15%)	15-30.
29	392	Manure spreader.....	78019	1604	Free	Free.
30	393	Grain thresher, steel, 22 by 38, complete.....	78004	1604	do.	Do.
31	394	Tractor, 10-20 horsepower.....	78700	1604	do.	Do.
32	398	Angle bars, steel.....	00810	312	0.2¢ lb.	15-27.
33	399	Angers, 1-inch.....	61572	396	45¢	45.
34	402	Bar iron, refined, per pound.....	60213	303	0.8¢ lb. (0.5¢ lb.)	16-26.
35	417	Chisels, 1-inch.....	61572	396	45¢	45.
36	418	Files, metal, 8-inch.....	61572	396	45¢	45.
37	421	Cork knives, 15 pounds to dozen.....	61583	373	30% (20¢)	20-30.
38	425	Iron ore.....	60010	1700	Free	Free.
39	439	Rails, steel.....	60001	322	0.1¢ lb.	7-11.
40	456	Nicks.....	61575	396	45¢	45.
41	474	Nickel electrolytic cathode, 98-99 percent.....	60420	380	25¢	25.
42	497	Concrete blocks, plain, 8 by 8 by 16 inches.....	54215	214	30¢	30.
43	536	Barytes, ground.....	84021	67	87.5¢ ton.	55-78.
44	538	Bone black, powdered.....	09033	69	25¢	25.
45	540	Iron oxide, black.....	84001	73	10¢	10.
46	550	Lithopone.....	84100	77	1.75¢ lb. (1.5¢ lb.)	48-65.
47	557	Whiting, imported chalk.....	84025	20	0.4¢ lb. (0.2¢ lb.)	72-171.
48	559	Asphalt, bulk.....	53010	1710	Free	Free.
49	560	Board, plaster.....	41000	1805	do.	Do.
50	585	Carbon dioxide, liquid.....	82212	1	1¢ lb.	1-2.
51	590	Coal-tar products, salicylic acid.....	80202	274	7¢ lb. and 40¢	45-46.
52	592	Acid, sulphuric, 66°.....	82060	1601	Free	Free.
53	595	Aluminum sulphate.....	83810	6	0.2¢ lb.	2-11.
54	601	Baking powder, 6-10-pound cans, in case.....	83430	1766	Free	Free.
55	603	Bleaching powder.....	83101	14	0.3¢ lb.	9-11.
56	607	Calcium carbide.....	82471	16	1¢ lb.	27-48.
57	609	Coal-tar products, black.....	80509	284	7¢ lb. and 45¢	50-51.
58	611	Coal-tar products, indigo, 20 percent paste.....	80509	284	7¢ lb. and 45¢	50-51.
59	626	Sodium bicarbonate.....	83430	1766	Free	Free.
60	630	Sulphur, crude.....	59334	1777	do.	Do.
61	649	Peroxide of hydrogen, 4-ounce bottle.....	838622	7	25¢	25.
62	676	Carvers, stag handles, 9-inch.....	61308	355	8¢ each and 45¢	69-77.
63	677	Knives, and forks, cocobola handles.....	61351	355	8¢ each and 45¢	69-77.
64	687	Ironers, electric, automatic, 30-inch roll.....	70966	373	35¢	35.
65	694	Sewing machines, treadle.....	75510	372	15¢	15.
66	698	Ranges, electric.....	70926	353	35¢ (25¢)	25-35.
67	702	Dinner sets.....	53502	212	10¢ doz. and 70¢	84-93.
68	704	Nappies, cotton, 4-inch.....	82762	2181	40¢	40.
69	755	Batteries, radio, dry "A".....	70621	333	35¢	35.
70	759	Cigar boxes, veneer.....	42000	405	20¢	20.
71	772	Shipping cases, rough, pine.....	42009	407	15¢	15.
72	775	Soap, laundry.....	87100	87	15¢	15.
73	777	Soap, toilet, 3- to 3½-ounce.....	87122	80	30¢	30.
74	781	Tobacco, plug, 11-ounce plug.....	26290	603	55¢ lb.	29-67.
75	782	Tobacco, smoking, gross of 1-ounce bags.....	26290	603	55¢ lb.	29-67.

## GROUP II

1	95	Bread, loaf before baking.....	10790	1623	Free	Free.
2	96	do.....	10790	1623	do.	Do.
3	225	Leather belting, 1-inch.....	09969	1531	35¢	35.
4	227	Gloves, unlined, short cuff.....	04120	1532	50¢	50.
5	240	Overcoat, 30-ounce, 3-button, yoke lined, heavy.....	36401	11150	50¢ lb. and 50¢	56-58.
6	336	Cotton thread, 6-cord, white 100 yards.....	30300	902	20¢	20.
7	337	Sisal thread, linen, per pound, 10's.....	32723	1004b	40¢	40.
8	374	Harrow, 17-tooth.....	78000	1604	Free	Free.
9	382	Plows, walking, 1-horse.....	78600	1604	do.	Do.
10	383	Plows, walking, 2-horse.....	78600	1604	do.	Do.
11	384	Pumps, agricultural, pitcher spout.....	78019	1604	do.	Do.
12	388	Cream separator, valued over \$50.....	77200	372	25¢ (12½¢)	12½-25.

<sup>1</sup> The grouping in this table corresponds to that given in appendix 2, table 11.

<sup>2</sup> For description of items whose number is followed by "c", see appendix 2, table 1.

TABLE I.—Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931-36, inclusive—Continued

## GROUP II—Continued

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
13	590	Shovels, cast-steel, black, longhandle	61581	373	30%	30.
14	395	Farm tractor, 15-30 horsepower	75700	1604	Free	Free.
15	396	Wagon, 2 horse, agricultural	78908	1604	do.	Do.
16	397	Windmill, steel, 8-foot diameter, aeromotor	78919	1604	do.	Do.
17	400	Axes, single-hut, 3½-4½ pounds	62065	339	40%	45.
18	415	Sanitary cans, tin	61575	396	45%	45.
19	419	Hammer, 1-pound	61569	396	45%	45.
20	420	Hatchet	61572	396	45%	45.
21	437	Planes, jackplane	61518	340	20% (15%)	15-20.
22	443	Saws, cross-cut, 6-foot	53906	201b	\$1.25 per M	15-20.
23	444	Saws, 26-inches, skewback	53811	202a	50%	4-11.
24	502	Brick, sandlime, per 1,000	53805	202	60%	50.
25	505	Floor tiles, ceramic unglazed	53813	202a	50%	50.
26	507	Cement roofing tile, 9 by 15	84318	66	25%	25.
27	508	Wall tile, glazed	84319	66	25%	25.
28	530	Enamel, paint	84413	75	25%	25.
29	534	Roof and barn paint, red	84202	71	20%	20.
30	555	Varnish	84213	70	20%	20.
31	541	Lampblack	42869	412	33.3%	33.3.
32	543	Chrome green, light	52201	222a	17c (11.3c sq. ft.)	5-7.5.
33	563	Door frames	52203	222a	19.75c (13.2c sq. ft.)	64-103.
34	565	Glass, plate, polished, 3-5 square feet	51114	235	25%	25.
35	566	Glass, plate, polished, 5-10 square feet	54229	214	30%	30.
36	578	Slate, roofing, 10 by 20-inch	82112	1601	Free	Free.
37	581	Crushed stone, 1½-inch	82115	1601	do.	Do.
38	586	Acid, muriatic, 20°	82010	1614	do.	Do.
39	587	Acid, nitric, 42°	83450	1766	do.	Do.
40	599	Arsenic, powdered arsenious oxide	83710	1641	do.	Do.
41	600	Calcium powder, case of 24 1-pound cans	80508	28a	7c lb. and 45%	50-53 (50-51).
42	608	Calcium chloride, 73-75 percent	83539	81	0.357c lb.	9-19 (9-18).
43	610	Coal-tar products, brown colors, sulphur	83830	806a	7½c lb.	1-2.
44	628	Sodium silicate, 40°	83126	49	0.75c lb.	115-132.
45	642	Chloroform	85210	1745	Free	Free.
46	644	Epsom salts, in barrels	36711	1117a	60%	60.
47	661	Potash, muriate, 80-85 percent, K C	36712	1117a	60%	60.
48	678	Carpets, Axminster, 3½-yard, wool	39810	1020	35%	35.
49	679	Carpets, Brussels, 5-frame, wool	70667	339	40%	40.
50	681	Lindoleum, felt base, 2 yards wide	39714	967	40% (30%)	30-40.
51	685	Heating appliances, electric irons	51531	7006a	35%	35.
52	690	Wall oilcloth, plain tints	52762	2187	60%	60.
53	693	Electric sewing machines	53710	211	10c doz. and 45%	64-79.
54	705	Pitchers, 1-gallon, glass	53710	211	10c doz. and 45%	60.
55	706	Plates, white, granite, 7-inch	52762	2187	60%	60.
56	707	Tenucups, saucers, granite	53710	211	10c doz. and 45%	64-79.
57	708	Tumblers, 8-10-ounce	53710	211	10c doz. and 45%	60.
58	757	Caskets, metal	52762	2187	60%	60.
59	758	Caskets, wood	67999	397	45%	45.
60	761	Matches, safety	42869	412	33.3%	33.3.
61	762	Asbestos pipe covering	97700	1516	20c gross (17.5c)	45-109.
62	767	Plate glass mirror, 12 by 24-inch, beveled	52500	223	45%	25.

## GROUP III

1	100	Crackers, plain soda	10751	733	30%	30.
2	101	Cookies, sugar	10751	733	30%	30.
3	117	Pretzels, butter	10751	733	30%	30.
4	155	Grape juice, case of 2 dozen pints	17740	806a	7½c gal.	42-116.
5	158	Cocoa, 3½-pound cans	15021	777a	3c lb. (1.5c lb.)	1.
6	190c	Shoes	03519	1530e	20%	20.
7	191	Shoes, child's	03519	1530e	20%	20.
8	192	Shoes, youth's	03519	1530e	20%	20.
9	197	Shoes, men's calf	03519	1530e	20%	20.
10	243	Boys' suits, all wool, 12-14-ounces	03509	1530e	20%	20.
11	244	Men's suits, 13-ounce serge	36401	1115a	50c lb. and 50%	56-58.
12	247	Topcoats, 18-ounce	36401	1115a	50c lb. and 50%	56-58.
13	250	Men's work pants, 2.65 yards to pound	31123	917	45%	45.
14	407	Steel barrels, weight 43 pounds, 35 gallons	62099	397	45%	35.
15	409	Boiler tubes, cold-drawn steel	60928	328	25%	25.
16	435	Pipe, steel, 9½-inch	60928	328	25%	25.
17	436	Pipe, steel, vulcanized	60928	328	25%	25.
18	455	Tin plate, 14 by 20 inches, base 100 pounds	60928	328	25%	25.
19	460	Fencing, woven wire	60911	310	1c per lb.	9-34.
20	499	Fire brick	53905	201a	50%	20-30.
21	503	Silica brick	53905	201a	50%	15-25.
22	504	Drain tile, clay, 1,000 feet	53906	201b	\$1.25 per M	4-11.
23	526	California redwood, 4 by 4, dressed or rough	53852	202a	70%	70.
24	532	Paint, house	41199	1803	Free	Free.
25	533	Paint, porch and deck	84319	66	25%	25.
26	542	Paint, prussian blue	84319	66	25%	25.
27	558	Zinc oxide	84210	68	8c lb.	34-44.
28	561	Board, building wall	84110	75	1.25c lb.	28-40.
29	584	Window frames	41090	1803	Free	Free.
30	573	Plaster	42869	412	33.3%	33.3.
31	584	Acid, boric	51930	205a	\$1.40 ton	9-18.
32	604	Borax, crystals, granulated	82210	81	1c lb.	12-22.
33	612	Coal-tar products, jet	83518	81	12½c lb.	50-53 (50-51).
34	615	Cresosote oil	80508	28a	7c lb. and 45%	Free.
35	620	Potash, caustic, 88-92 percent	60909	1651	Free	Free.
36	622	Soda, carbonate, salt	82336	78	25c lb.	48-49.
37	624	Salt, sodium chloride	83523	81	25c lb.	56-81.
38	629	Soda sulphide, 30 percent crystals	57241	81	0.07c lb.	56-81.
39	632	Coal tar products, toluene	83547	81	37½c lb.	20-26.
			80115	1651	Free	Free.

<sup>1</sup>Items 565-566 appear in appendix 2, table II, combined into 565c.

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TABLE 1.—Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931-36, inclusive—Continued

GROUP III—Continued						
No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
40	648	Opium.....	22060	59	\$3 lb.	64-142.
41	658	Phosphate rock, 68 percent.....	65198	1740	Free	Free.
42	659	Kainit, 12.4 percent.....	85230	1745	do.	do.
43	660	Manure salts, 20 percent.....	85240	1685	do.	do.
44	662	Sulphate of potash, 90-95 percent.....	85250	1745	do.	do.
45	680	Carpets, Wilton.....	36714	1117.3	60%	60.
46	682	Linooleum, rug, felt base, 9 by 12.....	39810	1020	35%	35.
47	684	Linooleum.....	39810	1020	35%	35.
48	686	Heating appliances, electric irons.....	70907	339	40%	40.
49	701	Tablecloths, 64 by 64.....	30823	910	30%	30.
50	710	Vacuum cleaner, without attachments.....	70660	353	35%	35.
51	711	Washing machine, electric, enamel.....	70999	333	35%	35.
52	743	Book paper, per 100 pounds.....	47120	1410	25¢ lb. and 100%	15-22.
53	744	Paper newspaper, rolls.....	47110	1722	Free	Free.
54	745	Tissue paper, white.....	47289	1404	6¢ lb. and 20%	31-39.
55	746	Paper, wrapping, Manila, jute.....	47230	1409	30% (25%)	25-30.
56	770	Garden hose, 3/8-inch, 2-braid, foot.....	20672	1537b	25%	25.
57	771	Rubbers, men's.....	20311	1537b	25%	25.
58	779	Cigarettes, per 1,000.....	26230	605	\$4.50 lb. and 25%	101-121.

GROUP IV						
1	45	Milk, 3.6 percent butter fat.....	00380	707	6.5¢ gal.	22-43
2	92	Bread, before baking.....	10790	1623	Free	Free.
3	94	do.....	10790	1623	do.	do.
4	176	Salt, 280-pound barrels.....	57240	81	1½¢ lb.	15-28.
5	194	Shoes, men's.....	03509	1530e	20%	20.
6	206	Shoes, women's.....	03529	1530e	20%	20.
7	208	do.....	03529	1530e	20%	20.
8	229	Suitcases.....	06920	1531	35%	35.
9	230	Traveling bags.....	06920	1531	35%	35.
10	242	Shirts, 3.85 yards to pound.....	31131	919	45%	45.
11	245	Suits, serge, 15-ounce.....	36401	1115a	50¢ lb. and 50%	56-58.
12	252	Table damask, cotton, 1.92 yards per pound.....	30833	910	30%	30.
13	264	Saispook, muslin, cotton.....	30595	904b	60¢ lb.	34-43.
14	269	Filling sateen, 36-inch, 4.37 yards to pound.....	3060900	904e	47½%	47½.
15	292	Underwear, cotton, 12 pounds.....	31123	917	45%	45.
16	294	Underwear, 33 percent worsted, 16 pounds to dozen.....	36371	1114e	50¢ lb. and 50% (30%)	45-65.
17	309	Dress goods, women's 91-ounce, wool.....	36651	1109e	50¢ lb. and 55%	86-87.
18	315	Flannel, wool 6½-ounce 54-inch.....	36650	1109a	50¢ lb. and 50%	105-113.
19	330	Artificial leather, 17½-ounce, 1.32.....	32370	923	40%	40.
20	331	Artificial leather, 7-ounce, 3.60.....	32370	923	40%	40.
21	334	Rope, sisal, 3/4-inch diameter.....	34170	1005a	2¢ (1¢ lb.)	16-24.
22	338	Twine, binder, sisal, 50-pound bale.....	34171	1005a	2¢ and 15% (1¢ lb. and 7½%)	37-6-40.
23	410	Machine bolts.....	62050	330	1¢ per lb.	25-35.
24	413	Track bolts.....	62050	330	1¢ lb.	25-35.
25	422	Door knobs, metal.....	62069	397	45%	45.
26	441	Rivets, small, 7/16-inch.....	62054	332	1¢ lb.	8-35.
27	453	Terneplate, 20 by 28-inch, base 300 pounds.....	60603	310	1¢ per lb.	9-34.
28	469	Aluminum, 98-99 percent.....	63020	374	4¢ per lb.	21-25.
29	496	Laundry tubs, cement composition, 48 by 24 inches.....	42427	300	70%	70.
30	506	Tile, hollow, building.....	53832	292a	70%	30.
31	509	Cement, portland, barrel.....	51810	205b	0.06¢ lb. (0.045¢ lb.)	18-30.
32	513	Lumber, chestnut, 4 by 4 common.....	41199	1803	Free	Free.
33	531	Paint, inside flat, house.....	44319	66	25%	25.
34	548	Lead, carbonate, white, in oil.....	84219	72	2 5/8¢ lb. (2 1/8¢ lb.)	21-34.
35	562	Doors, pine.....	42899	412	33.3%	33½.
36	567e	Glass, window.....	52078	219	Various per lb.	37-50.
37	569	Gravel, ton.....	53958	1775	Free	Free.
38	571	Lime, hydrated.....	51710	203	12¢ (0.8¢ per lb.)	17-25.
39	572	Pipe, sewer, 8-inch C (Iron).....	60910	327	25% (15%)	15-25.
40	579	Sand, building.....	53957	1775	Free	Free.
41	580	Window sash, white pine.....	42809	412	33.3%	33½.
42	598	Coal tar products, anilin oil.....	80478	27a1	7¢ lb. and 40%	42-46.
43	605	Calcium lime, acetate.....	82470	16	1¢ lb.	40-44.
44	613	Coppers.....	83717	1675	Free	Free.
45	617	Logwood extract, solid.....	83315	157	15%	15.
46	618	Coal-tar products, naphthalene, flake, pound.....	80108	1651	Free	Free.
47	625	Soda ash, 58 percent.....	83523	81	0.25¢ lb.	5-8.
48	627	Soda caustic, 76 percent.....	83533	81	0.5¢ lb.	5-8.
49	646	Iodine, resublimed.....	858630	44	10¢ lb.	(Negligible imports.)
50	652	Quinine, sulphate, 100-ounce tins.....	81020	1748	Free	Free.
51	654	Alkaloids, strychnine.....	81120	86	20¢ per oz.	No information 1931-35.
52	655	Zinc chloride, granular.....	83803	93	1 3/8¢ lb.	35-45.
53	673	Blankets, cotton, part wool, 3½-pound.....	36143	911e	1111	33¢ and 37½%
54	674	Blankets, 4-5 pound.....	36104	1111	33¢ and 37½%	65-67.
55	675	Comforters, sateen cover, woolfilling.....	36104	1111	33¢ and 37½%	65-67.
56	683	Linooleum, in bulk.....	36800	1020	45%	42.
57	685	Window shades, 6 foot by 36 inches, water color.....	39713	907	30%	30.
58	756	Storage battery, 13-plate.....	70920	320	40%	40.
59	768	Rubber heels.....	20984	1537b	25%	25.
60	769	do.....	20984	1537b	25%	25.
61	774	Soap, 100-11-ounce cakes.....	87199	80	15%	15.

GROUP V						
1	93	Bread, before baking.....	10790	1623	Free	Free.
2	133	Asparagus, canned 2½'s.....	12390	775	35%	35.
3	169	Jelly, grape, 8½, 6 to case.....	13295	751	35%	35.
4	171	Molasses, per gallon, average sugar content.....	16352	302	\$1.35 per 100 gal.	20-28.4
5	174	Peanut butter, 56-pound tins.....	13849	739	7¢ lb.	21-30 (negligible).
6	177	Soup, canned, tomato, 1-pound, 1-ounce.....	12531	775	35%	35.

TABLE 1.—Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931-36, inclusive—Continued

GROUP V—Continued				Tariff information		
No.	Bureau of Labor Statistics code No.	Commodity with brief description	Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
7	178	Corn starch, 48 1-pound packages	28150	83	1.5¢ per lb.	2-77.
8	182	Tea, Formosa	12210	1783	Free	Free.
9	201c	Shoes	03509	1530e	20%	20.
10	205c	Shoes, women's	03529	1530e	20%	20.
11	219	Leather, kid, glazed	03535	1530e	25%	25.
12	228	Harness, set	06993	1530f	15%	15.
13	248	Pants, boy's wool	36400	1115a	33¢ and 45%	58-61.
14	249	Pants, men's, serge, 12½-ounce	36401	1115a	50¢ lb. and 50%	56-58.
15	260	Gingham, 6 3/4 yards to pound (bleached)	3053	904	Various	34-43.
16	295c	Rayon	38304	1306	45¢ lb. and 60% (45%)	75-102 (75-82).
17	305	Spun silk, 200 2 gray	37053	1202	40%	40.
18	312	Suiting, 12-ounce, 36-inch	36051	1109a	50¢ lb. and 55%	86-87.
19	314	Dress goods, cotton warp	36032	1109	50¢ lb. and 55%	77-85 (77-81).
20	316	Overcoating, per yard, 28-ounce	36051	1109	50¢ lb. and 55%	86-94 (86-87).
21	333	Rope, manila, 1-pound, 3/4-inch diameter	34175	1005b	40% (20%)	20-40.
22	340	Twine, Java sisal	34175	1005b	40% (20%)	20-40.
23	341c	Carpet yarn, jute, 14-16	32441	1063	4¢ lb.	59.6-63.
24	364	Petroleum, crude, barrel	50510	1733	Free	Free.
25	411	Flow bolts, 2 by 3/8 inch	62050	330	1¢ lb.	25-35.
26	412	Stove bolts	62050	330	1¢ lb.	25-35.
27	423	Locks, 3½-inch sets	62080	384	\$2 doz. and 20%	45-55.
28	429	Pig iron, ferromanganese, 80 percent	60031	301	\$1 12.5 tons	3-4.
29	449	Steel skelp, grooved	60391	307	0.5¢ lb. (35¢ lb.)	28-53.
30	450	Spikes, 3/4-inch and more	61120	331	0.4¢ lb.	11-17.
31	454	Steel, tie plate	66005	322	0.25¢ lb.	9-24.
32	471	Babbitt metal, per pound	65061	392	2.125¢ lb.	2-7.
33	494	Sinks	62099	397	45¢	45.
34	500	Brick, front, light-colored	53007	203b	5%	5.
35	501	Paving blocks, 3½-inch	53060	201b	\$1.25 per M.	4-12 (4-10).
36	529	Cypress shingles	41922	1760	Free	Free.
37	539	Carbon black	84201	71	20%	20.
38	544	Chrome yellow	84213	70	25%	25.
39	553	Putty, 1-5-pound tins	84026	20	0.75¢ lb. (0.5¢ lb.)	30-73.
40	582	Tar, pine	21193	97	1¢ lb.	8-18 (10-18).
41	583	Acetic acid, 28 percent	82000	1	1.35¢ lb.	3-42.
42	596	Ammonia, anhydrous	82452	7	2.5¢ lb.	(No imports)
43	597	Ammonia, aqua	82452	7	2.5¢ lb.	Do.
44	616	Formaldehyde	83610	40	8¢ lb.	31-32 (negligible).
45	623	Salt cake, ground	83350	1766	Free	Free.
46	637	Alcohol, ethyl, grain, 188 proof	82313	4	15¢ gal.	3-12.
47	638	Alkaloids, caffeine	81110	15	\$1.25 lb. (90¢ lb.)	200 (negligible).
48	641	Chlorine	8305			(Negligible imports)
49	650	Phenol, carbolic acid	80200	27b	3.5¢ lb. and 20%	33-63.
50	651	Potash, iodine	83306	78	2.5¢ lb.	9-19.
51	653	Soda phosphate	83420	81	1.5¢ (1¢ lb.)	6-27.
52	667c	Fertilizer	85000	1685	Free	Free.
53	672	Blankets, cotton, 2-pound	30843	911a	30%	30.
54	688	Oil cloths, 12-inch	39714	907	30%	30.
55	689	Oil cloths, table	39714	907	30%	30.
56	745	Wood pulp, unbleached	46000	1716	Free	Free.
57	750	Soda, bleached, wood pulp	46099	1716	do.	Do.
58	790	Matches, nonsafety	92700	1516	20¢ (17.5¢ gross)	45-109.
59	798	Starch, laundry	28159	83	1.5¢ lb.	20-49.
GROUP VI						
1	43	Milk, 3.5 percent	00380	707	6.5¢ gal.	22-43.
2	43	Milk, 3.7 percent	00380	707	6.5¢ gal.	22-43.
3	114	Macaroni and spaghetti (tins)	10771	725	3¢ lb.	18-22
4	120	Apples, canned, 10's	13302	734	2.5¢ lb.	13-70.
5	122	Cherries, canned, 2½ s, 24 to case	13170	737	9.5¢ lb. and 40% (20%)	72-113 (95-113).
6	125	Pineapples, canned, 2½ s	13061	747	2¢ lb.	40-72
7	134	Beans, canned, 15 ounces	12392	765	3¢ lb.	30-65 (46-65).
8	162	Salmon, pink, No. 1, 48 to case	00671	718b	25%	25.
9	220	Harness leather	03500	1530b (3)	12½% (10%)	10-12½.
10	258	Cotton flannel, bleached, 4 5 yards per pound	3655	904b	Various	34-43.
11	266	Percale, gray, yard 35½ inches wide	3655	904b	do.	34-43.
12	275	Madras, woven, 4 6 yards per pound (bleached)	3655	904	do.	34-43.
13	280	Toweling, cotton, 4-ounce (bleached)	3655	904	do.	34-43.
14	286	Hosiery, cotton, 1/4-needle	31101	916a	50%	50.
15	287	Hosiery, cotton, 220-needle, 5-ounce	31101	916a	50%	50.
16	289	Hosiery, silk, 240-needle	37370	1208	60%	60.
17	291	Hosiery, cotton, 12-12½ pounds	31120	917	45% (30%)	30-45.
18	310	Flannel, wool	36032	1109	50¢ lb. and 55%	77-85 (77-81).
19	311	Dress goods, women's wool	36032	1109	50¢ lb. and 55%	77-85 (77-81).
20	313	do	36032	1109	50¢ lb. and 55%	77-85 (77-81).
21	317	Overcoating, wool, 18-ounce	36032	1109	50¢ lb. and 55%	77-85 (77-81).
22	318c	Suitings, serge	36030	1109	50¢ lb. and 50%	85-90.
23	322	Suitings, 12-ounce serge	36030	1109	50¢ lb. and 50%	85-90.
24	346	Coal	50000	1650	Free	Free.
25	350c	Coke	50080	1650	do.	Do.
26	401	Bar iron	60213	303	0.5¢ (0.5¢ lb.)	16-26.
27	405	Steel, sheet bars	60080	304	0.3¢ lb. (0.25¢ lb.)	20-44
28	408	Steel billets	60421	304	0.5¢ lb. (0.4¢ lb.)	20-23.
29	414	Bolts, wrought steel, plated	62070	1169	3¢	34-43.
30	416	Iron castings, malleable	61138	327	20%	20.
31	433	Pig iron	60630	301	\$1.125 ton	7-12
32	440	Rivets, large ½-inch and more	62054	332	1¢ lb.	8-35.
33	442	Wire rods	60360	315	0.5¢ lb. (0.5¢ lb.)	20-23.
34	452	Steel, structural shapes	60910	312	0.2¢ lb.	15-27
35	461	Zinc, sheet	65590	394	2¢ lb.	27-45.
36	490	Range boiler, galvanized, sheet steel	62099	397	45%	45.
37	493	Radiator	62099	397	45%	45.

TABLE I.—Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931-36, inclusive—Continued

GROUP VI—Continued						
No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
38	495	Bath tubs.....	62099	397	45%	45.
39	512	Siding, 3/4 by 8 inches, red cedar.....	41199	1803(1)	Free.....	Free
40	514	Cypress, 4 by 4 inches, M feet.....	41199	1803(1)	do.....	Do.
41	525	Lumber, poplar.....	41199	1803	do.....	Do.
42	545	Ethyl acetate, anhydrous.....	838430	37	3¢ lb.	(Negligible)
43	546	Copal, Manila.....	21099	1686	Free.....	Free.
44	570	Lime, building.....	51712	203	0.10¢ lb. (0.07¢)	14-22 (16-22).
45	594	Menthanol, wood alcohol, 95 percent.....	82316	4	18¢ gal.	5-57 (5-30 Neg.).
46	602	Benzine.....	80103	1651	Free.....	Free.
47	606	Calcium arsenate.....	83709	1642	do.....	Do.
48	621	Quebracho extract, solid, 63 percent.....	23440	38	15%	15.
49	635	Citric acid, crystals.....	82216	176	17¢ lb.	56-137 (79-137).
50	740	Box board, chip.....	46929	1750	Free.....	Free.
51	742	Box board, ton, 85 pounds.....	41199	1803(1)	do.....	Do.
52	747	Wood pulp, unbleached.....	46000	1716	do.....	Do.
53	749	do.....	46000	1716	do.....	Do.
54	754	Barrel, red oak, unlined.....	42067	407	15%	15.
55	773	Soap flakes, laundry.....	87199	80	15%	15.
56	776	Powdered soap, laundry.....	87199	80	15%	15.
GROUP VII						
1	89	Milk, condensed, sweet, 48 14-oz.....	00401	708a	2.75¢ lb.	42-63.
2	91	Milk, powdered skim.....	00411	708b	3¢ lb.	33-77 (33-67).
3	128	Currants, dried, 50-pound box.....	13210	742	2¢ lb.	32-39.
4	136	Peas, canned, 2-pound can.....	12563	709	2¢ lb. (1.5¢)	8-37 (21-37).
5	138	Beans, string, canned, 28.....	12392	705	3¢ lb.	46-65.
6	139	Tomatoes, canned, No. 3.....	12350	772	50¢	50.
7	168	Glucose, corn sirup, 42°.....	16542	503	2¢ lb.	17-35.
8	172	Oleomargarine, uncolored.....	06975	709	14¢ lb.	74-139.
9	186	Oil of olive, edible.....	12140	85	8¢ lb.	59-82 (60-82).
10	189	Vinegar, cider.....	12540	738	8¢ pt. gal.	27-39.
11	202c	Shoes, men's.....	03509	1530e	20¢	20.
12	221	Leather, tanned.....	03041	1530b(4)	15%	15.
13	239	Overalls, cotton.....	01135	919	37.5%	37.5.
14	259	Cotton flannel, unbleached.....	304 s	904b	Various	35.8-50.3.
15	270c	Sheeting, bleached, 10/4.....	305	904	do.....	34-43.
16	277	Ticking, 2 1/2 yards to pound.....	304 s	904b	do.....	36.8-50.3.
17	288	Hosiery, rayon, 38 gauge.....	138401	1309	45¢ lb. and 65%	75-117.
18	290	Hosiery, silk, 7 thread.....	37370	1208	60%	60.
19	303c	Silk, spun.....	37050	1202	40%	40.
20	335	Sisal.....	34010	1654	Free.....	Free.
21	343	Coal.....	50000	1650	do.....	Do.
22	344	do.....	50000	1650	do.....	Do.
23	345	do.....	50000	1650	do.....	Do.
24	347	do.....	50000	1650	do.....	Do.
25	348	do.....	50000	1650	do.....	Do.
26	362	Kerosene.....	50650	1733	do.....	Do.
27	365	Petroleum, crude.....	50510	1733	do.....	Do.
28	403	Reinforcing bars, 3/4-inch rolled.....	60051	304	0.3¢ lb. (0.25¢ lb.)	20-45.
29	404	Steel, merchant bars.....	60081	304	0.5¢ lb. (0.4¢ lb.)	19-26.
30	406	Steel bars, cold-rolled, finished.....	60081	315	0.525¢ lb.	20-21 (negligible).
31	424	Nails, wire.....	61121	331	15%	15.
32	427c	Pig iron.....	60030	301	\$1.125 ton	7-12.
33	431	Pig iron, No. 2.....	60030	301	do.....	7-12.
34	438	Steel plates, 3/4 inch.....	60551	304	0.5¢ lb. (0.4¢)	16-34.
35	457	Wire, annealed, fence, No. 6-9.....	67980	316a	25%	25.
36	458	Wire, galvanized, barbed.....	60930	1800	Free.....	Free.
37	459	Wire, galvanized, No. 9.....	61051	317	0.5¢ lb.	22-30.
38	461	Wood screws, No. 10, 1 1/2-inch iron.....	62082	338	25%	25.
39	491	Water closets, metal, enameled.....	61415	339	5¢ lb. and 30%	36-59.
40	492	Lavatories, each.....	61415	339	5¢ lb. and 30% (and 15%)	36-59.
41	498	Brick, common building.....	53906	201b	\$1.25 M.	4-11 (4-10).
42	518	Lumber, hemlock.....	41050	401	\$1 M bd. ft. (50¢)	20-46.
43	519	Lumber, maple, bard.....	41194	402	8¢ (4¢)	4-8.
44	520	Lumber, oak.....	41199	1803	Free.....	Free.
45	521	Lumber, pine, white.....	41070	401	\$1 M bd. ft. (50¢)	17-18.
46	524	Lumber, ponderosa pine.....	41070	401	\$1 M bd. ft. (50¢)	17-18.
47	537	Acetate, butyl.....	838421	37	7¢ lb.	(No imports, 1931-35).
48	574	Roofing, prepared.....	55200	1501c	0.75¢ lb. (0.6¢ lb.)	55-61.
49	575	do.....	55200	1501c	0.75¢ lb. (0.6¢ lb.)	55-61.
50	576	Roofing, slate-surfaced shingles.....	51114	235	25%	25.
51	577	Roofing, prepared shingles.....	55200	1501c	0.75¢ lb. (0.6¢ lb.)	55-61.
52	588	Oil, red, oleic acid.....	08216	1	20%	20.
53	591	Acid, stearic, distilled.....	08200	1	25%	25.
54	593	Alcohol, denatured, 188 proof.....	42310	4	15¢ gal.	7-113.
55	619	Oil, pine, distilled.....	22943	58	25%	25.
56	636	Acid, tartaric, crystals.....	82070	53	3¢ lb.	36-57 (36-48).
57	640	Castor oil.....	22012	53	3¢ lb.	33-68 (40-68).
58	643	Cream of tartar, powdered.....	83230	9	5¢ lb.	12-51 (12-50).
59	645	Glycerin.....	82910	42	2¢ lb. (1.65¢ lb.)	6-33 (17-33).
60	657	Bones, ground, 60 percent bone phosphate.....	85110	1627	Free.....	Free.
61	664	Superphosphate, 16 percent basis.....	83193	1740	do.....	Do.
62	666c	Fertilizer.....	85593	1685	do.....	Do.
63	691	Pails, galvanized iron, 10-quart.....	62099	397	45%	45.
64	692	Pillowcases, 64 by 64.....	30800	911b	25%	25.
65	696	Sheets.....	30800	911b	25%	25.
66	711	Boxboards, Manila lined chip.....	46929	1750	Free.....	Free.

\* Items 457, 458, and 459 appear in appendix 2, table 11, combined into No. 457c.

\* Items 574, 575, and 576 appear in appendix 2, table 11, combined into No. 574c.

TABLE I.—Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931-36, inclusive—Continued

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
1	46	Peanuts.....	13680	759	4 2½ lb.	144-209
2	47	Seed, alfalfa.....	24010	763	8c (4c lb.)	30-108 (40).
3	59c	Wool, unwashed.....	35060	1101a	24c lb.	112-139.
4	65c	Wool, grease basis.....	35060	1101a	24c lb.	112-139.
5	66c	Wool, scoured, 56's.....	35213	1102b	37c lb.	110-131.
6	67	Wool, grease basis, 50's, pound.....	35200	1102b	34c lb.	80-139.
7	90	Milk, evaporated, 48, 16 ounces in case.....	06400	708a	1.8c lb.	17-48.
8	119	Rice, clean.....	10530	727	2.5c lb.	85-117.
9	121	Apricots, canned.....	13315	735	35c	35.
10	123	Peaches, canned.....	13365	745	35c	35.
11	124	Pears, canned.....	13369	749	35c	35.
12	132	Bananas.....	13010	1618	Free.	Free.
13	135	Corn, canned.....	12499	775	35c	35.
14	137	Spinach, canned.....	12499	775	35c	35.
15	141c	Meat, beef.....	00180	701	6c lb.	49-87 (49-73).
16	145	Bacon.....	00600	703	3 2½ lb.	15-16.
17	163	Fish, salmon, canned.....	00671	718b	25c	25.
18	164	Fish, cod, canned (salmon).....	00675	718b	25c	25.
19	165	Fish, herrins, canned.....	00712	719(4)	25c	25.
20	166	Fish, mackerel, canned.....	00722	719(4)	25c	25.
21	167	Fish, salmon, smoked.....	00750	720a	25c	25.
22	173	Oil, corn.....	00362	701	1c lb.	6-16.
23	184	Vegetable oil, corn, crude.....	14220	53	20c	20.
24	187	Peanut oil, crude.....	14270	54	4c lb.	65-96.
25	188	Vegetable oil, soybean, crude.....	22550	54	3 ½ lb.	70-127 (79-127).
26	215	Goatskins.....	02410	1765	Free.	Free.
27	222c	Leather.....	03000	1590b(1)	12½c	12½.
28	253	Denims, cotton, 2 2 yards to pound.....	305	904	Various	34-43.
29	255	Drillings, cotton, 2 85 yards to pound.....	305	904	do.	34-43.
30	256	Duck, 8 ounces, base price 2½c.....	305	904	do.	34-43.
31	261c	Muslin, bleached.....	305 5	904b	do.	34-43.
32	272	Sheeting, brown, 2 85 yards to pound.....	304 5	904	do.	34-43.
33	273	Sheeting, 4 4, 3 72 yards to pound.....	305	904	do.	34-43.
34	274	Sheeting, 4 4, 4 yards to pound.....	305	904	do.	34-43.
35	276	Percale, print, 4 73 yards to pound.....	305	904	do.	34-43.
36	324	Yarns, worsted, white.....	35751	1107	40c lb. and 45c	38-50.3.
37	325	Woolen yarn, 2/40.....	35754	1107	40c lb. and 45c	75-80.
38	326	Woolen yarn, 2/50.....	35755	1107	40c lb. and 50c	65-72.
39	332	Cotton rope, awning.....	32570	623	Free.	Free.
40	349	Coke.....	50080	321	do.	Do.
41	366	Petroleum, crude.....	50510	1733	do.	Do.
42	434	Pipe, cast-iron, 6-inch.....	60910	327	25c (15c)	15-25.
43	446	Steel sheets, cold-rolled, annealed.....	60542	309	0.95c lb. (0.85c lb.)	31-50.
44	447	Auto body sheets, No. 20.....	60552	304	30c (20c)	20-30.
45	448	Sheets, galvanized, steel.....	60548	309	2c lb. and 20c	22-26.
46	451	Steel strips, cold-rolled.....	60669	313	2c lb. and 25c	26-29.
47	475	Lead, pipe.....	65903	302	2.35c lb.	34-54.
48	477	Yellow brass rods, ¾ to 2¾ inch, rod.....	64580	381	2.12c lb.	11-66.
49	478	Copper rods, round, 1¼ to 3-inch.....	64500	381	2.5c lb. and 4c lb.	7-20.
50	479	Brass, 2- to 8-inch sheets.....	64580	381	4c lb.	11-66.
51	480	Copper sheet, hot-rolled.....	64500	381	2.5c lb. and 4c lb.	7-20.
52	483	Solder.....	65041	392	2.12c lb.	2-7.
53	485	Yellow brass tube, seamless.....	64583	381	8c lb. and 4c lb.	32-67.
54	486	Brass wire, round.....	64586	316a	25c	25.
55	487	Copper wire, No. 8.....	64508	316a	25c	25.
56	517	Lumber, gum, plain sap, 4 by 4.....	41199	1803	Free.	Free.
57	527	Lumber, spruce.....	41060	401	\$1 M bd. ft. (50c)	17-26.
58	547	Pigments, red lead, dry.....	84217	72	2.75c lb.	31-71.
59	549	Litharge, powdered.....	84215	72	2.5c lb.	Free.
60	618	Copper sulphate, blue vitriol, 99 percent.....	82630	659	Free.	(Negligible imports 1931-35).
61	633	Oil, palm, crude.....	14290	54	1c lb.	22-33.
62	656	Ammonia, sulphate.....	83810	6	0.75c lb.	3-11.
63	663	Soda, nitrate, Chili salt peter.....	85960	1766	Free.	Free.
64	665	Tankage, ton.....	00950	1780	do.	Do.
65	709	Tubs, galvanized iron.....	62099	397	45c	45.
66	763	Oil, lubricating.....	50750	1733	Free.	Free.
67	765	Oil, neutral.....	50750	1733	do.	Do.

## GROUP IX

1	19c	Sheep.....	00120	702	\$3 ea.	25-55.
2	36	Apples.....	13110	734	25c bu. of 50 lb. (15c)	85-28 (14-28)
3	39	Hay, alfalfa.....	11010	779	\$5 ton.	40-72 (50-72)
4	40c	Hay.....	11010	779	\$5 ton (\$8)	41-72 (50-72)
5	48	Seed, clover.....	24010	763	8c lb.	40-108.
6	50	Seed, timothy.....	24130	763	2c lb. (1c)	10-31.
7	54	Potatoes, sweet.....	12119	774	50c	50.
8	58	Potatoes, white.....	12041	729	0.75c lb.	32-80 (33-89).
9	103c	Flour, wheat.....	10720	729	0.10c lb.	30-196.
10	116	Corn meal, granulated.....	10919	724	0.5c lb.	4-42.
11	118	Rice, clean.....	10530	727	2.5c lb.	85-117.
12	120	Apples, evaporated.....	13061	745	2c lb.	7-37.
13	127	Apricots, dried.....	13312	735	2c lb.	17-23.
14	129	Peaches, dried.....	13362	745	2c lb.	Negligible.
15	130	Prunes, dried.....	13352	746	2c lb.	13-22.
16	131	Raisins.....	13190	742	2c lb.	18-25 (18-24).
17	140	Bed, cured, 200-pound barrel.....	00290	706	6c lb.	24-76 (24-70).
18	146	Pork, cured.....	00310	703	3.25c lb.	11-16.
19	147	do.....	00310	703	3.25c lb.	8-12 (8-11).
20	149	do.....	00310	703	3.25c lb.	8-12 (8-11).

\* Items 65, 66, and 67 appear in appendix 2, table II, combined into No. 65c.

† Items 273, 273, and 274 appear in appendix 2, table II, combined into No. 272c.

‡ Items 325 and 326 appear in appendix 2, table II, combined into No. 325c.

TABLE 1.—Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931-36, inclusive—Continued

## GROUP IX—Continued

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
21	152	Poultry, dressed	00259	712	10¢ lb. (6¢ lb.)	25-43 (31-43).
22	161	Copra, dried	22320	1727	Free	Free.
23	179	Sugar, granulated	16196	501	2.5¢ lb. (1.875¢)	47-223.
24	183	Coconut oil, crude	22425	54	2¢ lb.	14-35.
25	211	Cow hides	02010	15304	10 <sup>00</sup> ¢	10.
26	214	Calf skins, 8-15 pounds	02070	15304	10 <sup>00</sup> ¢	10.
27	216	Kips	02050	15304	10 <sup>00</sup> ¢	10.
28	217	Sheep pelts	02320	1765	Free	Free.
29	257	Duck, No. 8, 36-inch, base price 64 cents	305	904	Various	34-43.
30	265	Osnaburg, 30-inch, 7-ounce	305	904	do.	34-43.
31	278	Tire fabrics	32326	904e	25 <sup>00</sup> ¢	25.
32	279	Tire fabrics, carded, 10-5	32326	904e	25 <sup>00</sup> ¢	25.
33	*281	Cotton yarn, carded	302's	901b	Various	25-33.
34	*282	Cotton yarn, 22-1 cones	302's	901b	Various	25-33.
35	*283	Cotton yarn, single, 40/1	301040	901a	17 <sup>00</sup> ¢	17.
36	328	Hemp, manila	39012	1504a	15 <sup>00</sup> ¢	15.
37	329	Jute, raw	32410	1984	Free	Free.
38	339	Cotton twine	32370	923	40 <sup>00</sup> ¢	40.
39	355	Fuel oil, 24-26 gravity	50550	1733	Free	Free.
40	356	Fuel oil, 36-40 gravity	50550	1733	do.	Do.
41	358	Gasoline, 54-58 gravity	50610	1733	do.	Do.
42	363	Kerosene	50650	1733	do.	Do.
43	445	Steel, scrap, old material	60040	301	75¢ ton	5-12.
44	472	Copper, ingot, electrolytic	64170	1658	Free	Free.
45	473	Lead, pig, desilverized	65650	392	2.12¢ lb.	69-108.
46	476	Quicksilver, flask, 1/75	66620	386	25¢ lb.	21-69.
47	488	Zinc, pig	65582	394	1.75¢ lb.	52-65.
48	510	Lumber, fir	41040	401	81 M bd. ft. (50¢)	17-35.
49	511	Lumber, pine, latb, 3/4-inch	41070	401	81 M bd. ft. (50¢)	17-35.
50	515	Lumber, fir	41040	401	81 M bd. ft. (50¢)	17-35.
51	516	do.	41040	401	81 M bd. ft. (50¢)	17-35.
52	522	Lumber, pine	41070	401	81 M bd. ft. (50¢)	17-35.
53	528	Lumber, cedar shingles	41921	1760	Free	Free.
54	551	China wood oil	23006	53	20 <sup>00</sup> ¢	20.
55	552	Linseed oil, raw	22540	53	4.5¢ lb.	77-124.
56	555	Shellac	21072	1707	Free	Free.
57	631	Tallow	08155	701	0.5¢ lb.	8-16 (11-16).
58	634	Palm oil	22430	1732	Free	Free.
59	639	Camphor, 100-pound cases	82580	51	1¢ lb.	3-5.
60	647	Menthol	81270	51	50¢ lb.	19-25.
61	737	Cottonseed meal	11156	730	0.5¢ lb.	27-57.
62	738	Linseed meal	11150	730	0.5¢ lb.	22-39 (28-39).
63	764	Cylinder oil	50750	1733	Free	Free.
64	766	Neutral oil	50750	1733	do.	Do.
65	784	Paraffin wax	50760	1733	do.	Do.

## GROUP X

1	1	Barley, malting, bushel of 48 pounds	10200	722	20¢ bu	23-60.
2	2c	Corn	10310	724	25¢ bu.	47-57.
3	4	Oats, bushel of 32 pounds	10410	726	16¢ bu.	42-100.
4	5	Rye, bushel of 56 pounds	10440	728	15¢ bu.	10-32.
5	6c	Wheat, bushel of 60 pounds	10665	729	42¢ bu.	43-84.
6	12	Calves	00100	701	2.5¢ lb. (1.5¢ lb.)	16-89 (46-89).
7	13c	Cows	00101	701	3¢ lb. (2¢)	40-67.
8	15c	Steers	00105	701	3¢ lb. (2¢ lb.)	40-67.
9	17c	Hogs	00130	703	2¢ lb.	16-28.
10	20	Lambs	00120	702	3¢ ea.	25-55.
11	22c	Poultry, live	00150	711	8¢ lb. (4¢ lb.)	16-29.
12	24c	Cotton, middling	30021	783	7¢ lb.	39-75 (44-75).
13	27c	Eggs	00880	713	10¢ doz	54-74.
14	30	do.	00880	713	10¢ doz	54-74.
15	35	Apples	13110	734	25¢ bu. (15¢ bu.)	8.5-28 (14-28).
16	37	Lemons	13030	743	2.5¢ lb.	90-113 (90-108).
17	38	Oranges, 126-200	13330	743	1¢ lb.	21-38.
18	42	Hops	25100	780	24¢ lb.	39-76.
19	49	Flaxseed, bushel of 56 pounds	22330	762	65¢ bu	66-99 (61-99).
20	51	Tobacco, leaf	20500	601	35¢ lb.	66-115.
21	52	Beans, dried	11920	765	3¢ lb.	98-133.
22	53	Onions	12080	770	2.5¢ lb.	113-188.
23	55c	Potatoes, white	12041	771	0.75¢ lb.	43-89 (53-89).
24	68c	Butter	00440	709	14¢ lb.	53-89.
25	80c	Cheese	00469	710	7¢ lb.	44-52 (47-52).
26	98	Oatmeal	10922	726	0.80¢ lb.	9-17.
27	102	Flour, rye	10926	728	0.55¢ lb.	8-35 (10-35).
28	113	Hominy grits	10919	724	0.50¢ lb.	4-42.
29	115	Corn meal	10919	725	0.50¢ lb.	4-42.
30	143	Lamb, fresh	00220	702	7¢ lb.	39-117.
31	144	Mutton, dressed	00210	702	5¢ lb.	35-102.
32	*148	Pork, hams	00300	703	3.25¢ lb.	11-16.
33	150	do.	00300	703	3.25¢ lb.	11-16.
34	151	Veal, fresh	00190	701	6¢ lb.	61-100.
35	153	Poultry, fresh, 48-54 pounds to dozen	00254	712	10¢ lb. (6¢)	25-43 (31-43).
36	157	Cocoa beans	15010	1653	Free	Free.
37	159	Coffee	15110	1654	do.	Do.
38	169	do.	15110	1654	do.	Do.
39	170	Lard	00360	703	3¢ lb.	12-27 (12-26).
40	175	Pepper, black	15512	781	5¢ lb.	11-25 (11-19).
41	180	Sugar, raw, 96°	16196	501	2.5¢ lb. (1.875¢)	47-223.
42	181	Tallow, edible	08155	701	0.5¢ lb.	8-16 (11-16).
43	185	Cottonseed oil	12321	54	3¢ lb.	63-66.
44	212c	Hides, steers	02010	15304	10 <sup>00</sup> ¢	10.

\* Items 281, 282, and 283 appear in appendix 2, table II, combined into No. 281c



TABLE I.—Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931-36, inclusive—Continued

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
45	267	Print cloths, 7.6 yards to pound, 27-inch.	305	904	Various	34-43.
46	268	Print cloths.	305	904	do.	34-43.
47	284c	Cotton yarn.	302's	904b	do.	28-33.
48	290c	Raw silk.	37920	1753	Free.	Free.
49	306c	Silk yarn, thrown.	37992	1293	20%	20.
50	327	Burlap.	32470	1008	1c lb.	14-15.
51	357	Gasoline.	50610	1753	Free.	Free.
52	359c	do.	50610	1753	do.	Do.
53	470	Antimony.	66511	376	2c lb.	18-56.
54	482	Silver bar.	...	1638	Free.	Free.
55	484	Tin, pig.	65530	1786	do.	Do.
56	534	Kosin, yard basis.	21801	90	5%	5.
57	556	Turpentine.	21190	90	5%	5.
58	736	Milled, bran.	11902	730	10%	10.
59	739	Milled.	11902	730	10%	10.
60	751c	Rubber, crude.	20110	1697	Free.	Free.

TABLE II.—Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931-36 inclusive

No.	Bureau of Labor Statistics Code No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
1	573	Plaster.	51930	205a	\$1.40 ton	9-18.
2	658	Phosphate rock, 68 percent.	65198	1740	Free.	Free.
3	651	Potash, iodine.	83306	78	25c lb.	9-19.
4	336	Cotton thread, 6-cord, white, 100 yards.	30300	902	20%	20.
5	599	Arsenic, powdered arsenious oxide.	82010	1044	Free.	Free.
6	661	Potash, muriate, 80-85 percent K. C. L.	83210	1745	do.	Do.
7	662	Sulphate of potash, 90-95 percent.	83250	1745	Free.	Free.
8	779	Cigarettes, per thousand.	26230	605	\$4.50 lb. and 25%	101-121.
9	646	Iodine, resublimed.	83630	44	10c lb.	(Negligible imports.)
10	700	Matches, nonsafety.	97700	1516	2c (17.5c gross)	45-109.
11	600	Baking powder, case of 21 1-pound cans.	83430	1766	Free.	Free.
12	345	Coal.	50000	1650	do.	Do.
13	560	Board, plaster.	11090	1903	do.	Do.
14	379	Corn picker.	78918	1604	do.	Do.
15	644	Epsom salts, in barrels.	83126	49	75c lb.	115-132.
16	598	Coal-tar products, anilin oil.	80478	27a	7c lb. and 10%	42-46.
17	565c	Glass, plate, polished.	32201	222a	17c (11.3c sq. ft.)	5-78.
18	707	Tacaps, saucers, granite.	53710	211	10c doz. and 45%	64-79.
19	761	Matches, safety.	97200	1516	2c gross (17.5c)	45-109.
20	706	Plates, white, granite, 7-inch.	53710	211	10c doz. and 45%	64-79.
21	597	Ammonia, aqua.	82432	7	2.5c lb.	(No imports.)
22	92	Bread, before baking.	10790	1623	Free.	Free.
23	629	Soda sulphide, 30 percent crystal.	83517	81	0.35c lb.	20-29.
24	650	Phenol, carbolic acid.	80200	27b	3.5c lb. and 20%	33-63.
25	313	Coal.	50000	1650	Free.	Free.
26	469	Aluminum, 88-99 percent.	63029	374	4c per lb.	21-25.
27	596	Ammonia, anhydrous.	82432	7	2.5c lb.	(No imports.)
28	232	Collars, men's stiff.	31155	919	37.5%	373.
29	97	Corn flakes.	10917	732	20% (15%)	15-20.
30	602	Benzine.	80100	1651	Free.	Free.
31	755	Batteries, radio, dry "A"	70921	353	35%	35.
32	601	Baking powder, six 10-pound cans in case.	83430	1766	Free.	Free.
33	375	Combine thresher, 10-foot, motor driven.	78800	1904	do.	Do.
34	624	Salt, sodium chloride.	57241	6	0.07c lb.	56-81.
35	344	Coal.	50000	1630	Free.	Free.
36	96	Bread, loaf before baking.	10790	1623	do.	Do.
37	775	Soap, laundry.	87199	80	15%	15.
38	151	Kaisins.	13190	742	2c lb.	18-25 (18-24).
39	536	Barytes, ground.	84021	67	\$7.50 ton.	55-78.
40	541	Lampblack.	84202	71	20%	20.
41	677	Knives and forks, cocobola handles.	61351	355	8c each and 45%	69-77.
42	653	Soda phosphate.	83430	1742	1c lb. (1c lb.)	6-27.
43	154	Ginger ale.	17500	808	15c gal.	13-17.
44	746	Paper, wrapping, manila, jute.	47230	1409	30% (25%)	23-30.
45	628	Sodium silicate, 40°	83539	81	0.375c lb.	9-19 (9-18).
46	587	Acid, nitric, 42°	82115	1603	Free.	Free.
47	609	Coal-tar products, black.	80509	28a	7c lb. and 45%	50-51.
48	590	Coal-tar products, salicylic acid.	80202	27a	7c lb. and 40%	45-46.
49	630	Sulphur, crude.	50331	1777	Free.	Free.
50	607	Calcium carbide.	10171	167	1c lb.	27-48.
51	241	Shirts, men's dress, broadcloth.	31131	919	45%	45.
52	474	Nickel electrolytic cathode, 98-99 percent.	65420	380	25%	25.
53	611	Coal-tar products, indigo, 20 percent paste.	80396	28a	7c lb. and 45%	50-51.
54	781	Tenoco, plug, 11-ounce plug.	60529	167	Free.	25-67.
55	585	Carbon dioxide, liquid.	82212	1	1c lb.	1-2.

<sup>1</sup> The grouping in this table corresponds to that given in appendix 2, table III.

<sup>2</sup> For description of items whose number is followed by "c," see appendix 2, p. 1.

TABLE II.—Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931-36 inclusive—Continued

No.	Bureau of Labor Statistics Code No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
56	399	Augers, 1 inch.....	61572	396	45%	45.
57	439	Rails, steel.....	60901	322	0 1/2 lb.	7-11.
58	136	Peas, canned, 2-pound can.....	12863	769	2 1/2 lb. (1.5c)	8-37 (21-37).
59	581	Crushed stone, 1 1/2-inch.....	54229	214	30%	30.
60	610	Coal-tar products, Brown colors, sulphur.....	80568	284	7 1/2 lb. and 45%	50-53 (50-51).
61	648	Opium.....	22090	59	83 lb.	64-142.

GROUP 2						
1	418	Files, metal, 8-inch.....	61534	362	77.5¢ doz. (45¢ doz.)	11-30.
2	402	Bar iron, refined, per pound.....	60013	303	0.8¢ lb. (0.5¢ lb.)	16-26.
3	544	Chrome yellow.....	84213	70	25%	25.
4	592	Acid, Sulphuric, 66 degrees.....	82060	1601	Free	Free.
5	586	Acid, muriatic, 20 degrees.....	82112	1601	do	Do.
6	398	Angle bars, steel.....	60810	312	0.2¢ lb.	15-27.
7	469	Boiler tubes, cold drawn steel.....	60928	328	25%	25.
8	660	Manure salts, 20 percent.....	85240	1685	Free	Free.
9	626	Sodium bicarbonate.....	84340	1766	do	Do.
10	156	Soda.....	17760	808	1.5¢ gal.	13-17.
11	176	Salt, 280-pound barrels.....	57240	81	1 1/2 lb.	15-28.
12	417	Chisels, 1-inch.....	61572	396	45%	45.
13	542	Paint, prussian blue.....	84210	68	8¢ lb.	34-44.
14	415	Sanitary cans, tin.....	62065	339	40%	40.
15	436	Pipe, steel, galvanized.....	60928	328	25%	25.
16	759	Cigar boxes, veneer.....	42090	405	20%	20.
17	622	Soda, carbonate, sil.....	83523	81	0.25¢ lb.	5-8.
18	507	Cement, roofing tile, 9 by 15.....	53805	292	60%	60.
19	531	Paint, inside flat, house.....	84319	66	25%	25.
20	191	Shoes, children's.....	05539	15306	20%	20.
21	456	Vises.....	61575	396	45%	45.
22	443	Saws, cross-cut, 6-foot.....	61518	340	20% (15%)	15-20.
23	744	Paper, newsprint, rolls.....	47110	1772	Free	Free.
24	654	Alkaloids, strychnine.....	81120	86	20¢ per oz.	No information 1931-35.
25	426	Iron ore.....	60010	1700	Free	Free.
26	53	Onions.....	12080	779	2.5¢ lb.	113-188.
27	627	Soda caustic, 76 percent.....	83533	81	0.5¢ lb.	3-4.
28	557	Whiting, imported chalk.....	84025	20	0.4¢ lb. (0.2¢ lb.)	72-171.
29	537	Acetate, butyl.....	88421	37	7¢ lb.	(No imports 1931-35.)
30	608	Calcium, chloride, 73-75 percent.....	83710	1641	Free	Free.
31	293	Underwear, men's, 60 percent wool, 40 percent cotton.....	36371	1114c	50¢ lb. and 50% (30%)	45-65.
32	435	Pipe, steel, 3/4-inch.....	60928	328	25%	25.
33	630	Artificial leather, 17 1/2-ounce, 1.32.....	32370	923	40%	40.
34	710	Vacuum cleaner, without attachments.....	70690	333	30%	30.
35	320	Potash, caustic, 88-92 percent.....	83250	78	1¢ lb.	14-19.
36	676	Carvers, stag handles, 9-inch.....	61308	355	8¢ each and 45%	69-77.
37	772	Shipping cases, rough, pine.....	42069	407	15%	15.
38	370	Engine, 3-horsepower, agricultural implement.....	78019	1604	Free	Free.
39	653	Zinc chloride, granular.....	83893	93	1.3¢ lb.	35-45.
40	497	Concrete blocks, plain, 8 by 8 by 16 inches.....	54245	214	30%	30.
41	625	Soda ash, 68 percent.....	83523	81	0.25¢ lb.	5-8.
42	659	Kaunit, 12 1/4 percent.....	83250	173	Free	Free.
43	501	Board, building wall.....	41060	1803	do	Do.
44	101	Cookies, sugar.....	10751	733	30%	30.
45	128	Currants, dried, 50-pound box.....	13210	742	2¢ lb.	32-39.
46	623	Salt cake, ground.....	83550	1706	Free	Free.
47	380	Corn planter, 30-inch open wheels, 80 rods.....	78915	1604	do	Do.
48	687	Ironers, electric, automatic, 30-inch roll.....	70999	353	35%	35.
49	649	Peroxide of hydrogen, 4-ounce bottle.....	83862	5	25%	25.
50	441	Saws, 26-inch, skewback.....	61515	340	20% (15%)	15-20.
51	226	Gloves, men's, mocha, unlined.....	04120	1532	50% (min.)	62-73.
52	494	Sinks.....	62099	397	45%	45.
53	550	Lithopone.....	84100	77	1.75¢ lb. (1.5¢ lb.)	48-65.
54	556	Turpentine.....	21190	90	5%	5.
55	331	Artificial leather, 7-ounce, 3.60.....	32370	923	40%	40.
56	393	Grain thresher, steel, 22 by 38 complete.....	78064	1604	Free	Free.
57	538	Bone black, powdered.....	09513	69	20%	20.
58	777	Soup, toilet, 3 1/2 to 4 1/2 ounces.....	87122	80	30%	30.
59	225	Leather belting, 1-inch.....	06999	1531	35%	35.
60	177	Soup, canned, tomato, 1-pound, 1-ounce.....	12531	775	35%	35.

GROUP 3						
1	367	Grain binder, 6-foot, with bundle carrier.....	78919	1694	Free	Free.
2	570	Lime, building.....	51712	293	10¢ per 100 lbs. (7c)	14-22 (16-22).
3	391	Spade, garden.....	61581	373	30%	30.
4	593	Alcohol, denatured, 188 proof.....	82310	4	1.5¢ gal.	7-113.
5	530	Enamel, paint.....	84318	66	25%	25.
6	381	Plow tractor, 14 inches.....	78910	1604	Free	Free.
7	619	Oil, pine, distilled.....	22943	58	25%	25.
8	613	Copiers.....	83717	1675	Free	Free.
9	376	Hoe, garden, 7-inch.....	61380	373	30% (15%)	15-30.
10	137	Spinach, canned.....	12499	775	35%	35.
11	545	Ethyl acetate, anhydrous.....	83840	37	3¢ lb.	(Negligible.)
12	543	Chrome green, liquid.....	84213	307	20%	20.
13	171	Molasses, per gallon, average sugar content.....	16352	502	\$1.35 per 100 gal.	20-28.4.
14	595	Aluminum sulphate.....	838140	6	0.2¢ lb.	2-11.
15	132	Bananas.....	13010	1618	Free	Free.
16	603	Soda, nitrate, Chili salt-peter.....	83600	1766	do	Do.
17	558	Zinc, oxide.....	84110	77	1.75¢ lb.	28-40.
18	548	Lead, carbonate, white, in oil.....	84219	72	2.5¢ lb. (2¢ lb.)	21-34.
19	385	Rake, 14 teeth, steel.....	61589	373	30% (15%)	15-30.

TABLE II.—Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931-36 inclusive—Continued

GROUP 3—Continued						
No.	Bureau of Labor Statistics Code No.	Commodity with brief description	Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
20	421	Cork knives, 15 pounds to dozen	61585	373	30% (20%)	20-30.
21	227	Gloves, unlined, short cuff	04120	1532a	50%	50.
22	698	Ranges, electric	70926	353	35% (25%)	25-35.
23	681	Linoleum, felt base, 2 yards wide	30810	1020	35%	35.
24	635	Citric acid, crystals	82216	1	1 1/2 lb.	56-137 (79-137).
25	388	Cream separator, valued over \$50.	77200	372	25% (12 1/2%)	12 1/2-25.
26	390	Shovels, cast steel, black, long handle	61581	373	30%	30.
27	337	Shoe thread, linen, per pound, 10's	32723	1004b	40%	40.
28	680	Heating appliances, electric irons	70907	339	40%	40.
29	638	Alkaloids, caffeine	81110	15	\$1 25 lb. (90¢ lb.)	200 (negligible).
30	704	Nappies, common, 4-inch	52762	218f	60%	60.
31	386	Rake, self-dump, 10 feet, 26 teeth	78902	1604	Free	Free.
32	45	Bread, loaf before baking	10790	1623	do.	Do.
33	758	Caskets, wood	42899	412	33.3%	33 1/3.
34	769	Rubber heels	20984	1537b	25%	25.
35	99	Wheat cereal	10917	732	20% (15%)	15-20.
36	228	Harness, set	06995	1530f	15%	15.
37	377	Hay loader, 6-foot windrow, with carriage	78919	1604	Free	Free.
38	158	Cocoa, 1/2-pound cans	15021	777a	3¢ lb. (1.5¢ lb.)	12-27.
39	371	Forks, hay, 3 tines	01589	373	30% (15%)	15-30.
40	492	Moore spreader	78919	1604	Free	Free.
41	423	Locks, 3 1/2-inch sets	62080	384	\$2 doz. and 20¢	45-55.
42	540	Iron oxide, black	84001	73	10%	10.
43	534	Roof and barn paint, red	84319	66	25%	25.
44	535	Varnish	84413	75	25%	25.
45	169	Jelly, grape, 8 1/2, 6 to case	13295	751	35%	35.
46	43	Milk, 3.5 percent	00380	707	6.5¢ gal.	22-43.
47	533	Paint, porch and deck	84319	66	25%	25.
48	584	Acid, boric	82210	1	1¢ lb.	12-22.
49	369	Grain drill, 12 by 7, plain single disk	78915	1604	Free	Free.
50	571	Lime, hydrated	51710	203	12 (0.08 per lb.)	17-25.
51	372	Harrow, disk, 14 by 16 with scrapers	78900	1604	Free	Free.
52	308	Cultivator, riding, 8 shovels, pin break	78600	1604	do.	Do.
53	604	Borax, crystals, granulated	83518	81	0.125¢ lb.	1.
54	346	Coal	30000	1650	Free	Free.
55	206c	Shoes, women's	83529	1530e	20%	20.
56	605	Bleaching powder	83100	14	0.3¢ lb.	9-11.
57	632	Coal-tar products, toluene	80115	1651	Free	Free.
58	756	Storage battery, 13-plate	70920	320	40%	40.
59	508	Wall tile, glazed	53815	202a	50%	50.
60	560	Gravel, ton	53558	1775	Free	Free.
61	117	Pretzels, butter	10751	733	30%	30.
62	89	Milk, condensed, sweet, 48 11-ounce	00041	708a	2.75¢ lb.	42-63.
GROUP 4						
1	378	Mower, 5-foot, regular lift	78903	1604	Free	Free.
2	693	Electric sewing machines	70999	353	35%	35.
3	397	Windmill, steel, 8-foot diameter, aeromotor	78919	1604	Free	Free.
4	306	Wagon, 2-horse, agriculture	78908	1604	do.	Do.
5	574c	Roofing	85200	1501e	0.75¢ lb. (9.6¢)	55-61.
6	492	Lavatories, each	61415	339	5¢ lb. and 30% (and 15%)	30-59.
7	757	Caskets, metal	67999	397	45%	45.
8	711	Washing machine, electric enamel	70999	353	35%	35.
9	383	Plows, walking, 2-horse	78901	1604	Free	Free.
10	133	Asparagus, canned, 2 1/2's	12390	775	35%	35.
11	579	Sand, building	53457	1775	Free	Free.
12	348	Coal	30000	1650	do.	Do.
13	377	Roofing, prepared shingles	85200	1501e	0.75¢ lb. (9.6¢)	55-61.
14	572	Pipe, sewer, 8-inch, c/1, foot (iron)	60910	327	25% (15%)	15-25.
15	387	Rake, side delivery	78902	1604	Free	Free.
16	441	Rivets, small, 7/8 inch	62054	332	1¢ lb.	8-35.
17	416	Iron castings, malleable	61138	327	20%	20.
18	583	Acetic acid, 28 percent	82000	1	1.375¢ lb.	3-42.
19	394	Tractor, 10-20-horsepower	78700	1604	Free	Free.
20	694	Sewing machines, treadle	75510	372	15%	15.
21	165	Fish, herring, canned	06712	719.41	25%	25.
22	690	Wall cloth, plain tints	39714	907	40% (30%)	30-40.
23	450	Spikes, 1 1/2 inch and more	61120	331	0.4¢ lb.	11-17.
24	502	Brick, sandlime, per thousand	33006	201b	\$1 25 per M.	4-11.
25	453	Tin plate, 14 by 20 inches, base 100 pounds	06061	310	1¢ per lb.	9-34.
26	642	Chloroform	838310	18	4¢ per lb.	1-2.
27	606	Calcium arsenate	83709	1642	Free	Free.
28	696c	Fertilizer	85593	1685	do.	Do.
29	453	Terneplate, 20 by 28 inches, base 300 pounds	06063	310	1¢ per lb.	9-34.
30	500	Brick, front, light-colored	33907	201b	5¢	5.
31	413	Track bolts	62050	330	1¢ lb.	15-35.
32	640	Castor oil	62053	353	3¢ lb.	25-35 (40-68).
33	684	Linoleum	30810	1020	35%	35.
34	193	Shoes, youths'	03519	1530e	20%	20.
35	393	Farm tractor, 15/30-horsepower	78700	1604	Free	Free.
36	683	Door frames	42896	412	33.3%	33 1/3.
37	564	Window frames	42899	412	33.3%	33 1/3.
38	616	Formaldehyde	838610	40	8¢ lb.	31-32 (negligible).
39	490	Range boiler, galvanized, sheet steel	62099	397	45%	45.
40	481	Zinc, sheet	65500	394	2¢ lb.	25-48.
41	119	Rice, clean	10530	727	2.5¢ lb.	25-117.
42	362	Kerosene	50650	1733	Free	Free.
43	442	Wire rods	60900	315	0.3¢ lb. (25¢ lb.)	20-23.
44	559	Asphalt, bulk	59040	410	Free	Free.
45	139	Tomatoes, canned, No. 3	12580	772	50%	50.
46	495	Bath tubs	62069	397	45%	45.
47	400	Axes, single bit, 3 1/2-4 1/2 pounds	61569	396	45%	45.
48	490	Fencing, woven wire	61052	317	0.5¢ per lb.	20-30.
49	612	Coal-tar products, jet	80508	28a	7¢ lb. and 45%	50-53 (50-51).
50	457c	Wire	67980	316a	25%	25.

TABLE II.—Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931-36 inclusive—Continued

No.	Bureau of Labor Statistics No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
51	594	Menthol, wood alcohol, 95 percent.....	82816	4	18¢ gal.	5-57 (5-30 negligible).
52	643	Cream of tartar, powdered.....	82230		5¢ lb.	12-51 (12-50).
53	374	Harrow, 17-tooth.....	78900	1604	Free.	Free.
54	373	Harrow, peg-tooth.....	78900	1604	do.	Do.
55	652	Quinine, sulphate, 100-ounce tins.....	81020	1748	do.	Do.
56	685	Heating appliances, electric irons.....	70907		40%.	40.
57	664	Super-phosphate, 16 percent basis.....	85193	1740	Free.	Free.
58	521	Lumber, pine, white.....	41070	401	\$1 M b. ft. (50¢).	17-18.
59	532	Steel, tie plate.....	60003	622	0.25¢ lb.	9-24.
60	509	Cement, portland, barrel.....	51810	2057	0.004 (0.045¢ lb.)	18-30.
61	454	Paint, house.....	84319	76	25¢.	25.

## GROUP 5

1	155	Grape juice, case of 2 dozen pints.....	17740	806a	70¢ gal.	42-116.
2	315	Flannel, wool 6½ ounces, 54 inches.....	39030	1109a	50¢ lb. and 50¢.	105-113.
3	667c	Fertilizer.....	85000	1085	Free.	Free.
4	347	Coal.....	50090		do.	Do.
5	179	Sugar, granulated.....	16196	501	2.5¢ lb. (1.875¢).	47-223.
6	389	Corn sheller, power, two-hole.....	78115	1604	Free.	Free.
7	763	Oil, lubricating.....	50750	1733	do.	Do.
8	705	Pitchers, ½-gallon, glass.....	52762	2181	60¢.	60.
9	578	Slate, roofing, 10- by 20-inch.....	51113	235	25¢.	25.
10	37	Lemons.....	13030	743	2.5¢ lb.	90-113 (90-108).
11	289	Hosiery, silk, 240-needle.....	37370	1208	60¢.	60.
12	414	Butts, wrought steel, plated.....	62070	397	45¢.	45.
13	501	Faving blocks, 3½-inch.....	53895	201b	\$1.25 per M.	4-12 (4-10).
14	180	Sugar, raw, 96°.....	16196	501	2.5¢ lb. (1.875¢).	47-223.
15	294	Underwear, 33 percent worsted, 16 pounds to dozen.....	36371	1114c	50¢ lb. and 50¢ (30¢).	15-65.
16	201c	Shoes.....	63509	1530b	20¢.	20.
17	305	Spun silk, 200-2 gray.....	37653	1202	40¢.	40.
18	770	Garden hose, ½-inch, 2-braid, foot.....	20672	1357b	25¢.	25.
19	275	Madras, woven, 4.6 yards, pound (bleached).....	30588	904	Various.	34-43.
20	782	Tobacco, smoking, gross of 1-ounce bags.....	26299	603	55¢ lb.	29-67.
21	433	Fig iron.....	60030	504	\$1.12½ ton.	7-12.
22	420	Batchet.....	61560	396	45¢.	45.
23	615	Creosote oil.....	80000	1651	Free.	Free.
24	194c	Shoes, men's.....	63509	1530b	20¢.	20.
25	364	Petroleum, crude, barrels.....	50510	1733	Free.	Free.
26	45	Milk, 3.6 percent butterfat.....	60880	707	6¢ gal.	22-43.
27	754	Barrel, red oak, unlined.....	42067	407	15¢.	15.
28	303c	Silk, spun.....	37650	1202	40¢.	40.
29	605	Calcium lime, acetate.....	82470	16	1¢ lb.	40-44.
30	208	Shoes, women's.....	63520	1530b	20¢.	20.
31	314	Dress goods, cotton warp.....	39032	1109	50¢ lb. and 55¢.	77-85 (77-81).
32	695	Window shades, 6 feet by 36 inches, water color.....	39715	907	30¢.	30.
33	189	Vinegar, cider.....	12540	738	8¢ pt. gal.	27-39.
34	518	Lumber, hemlock.....	41050	401	\$1 M b. ft. (50¢).	20-46.
35	120	Apples, canned, 10's.....	13302	734	2.5¢ lb.	13-70.
36	384	Pumps, agriculture, pitcher spout.....	78919	1604	Free.	Free.
37	496	Laundry tubs, cement composition, 48 by 24 inches.....	54227	214	30¢.	30.
38	436	Acid, tartaric, crystals.....	82670	1	3¢.	3¢-57 (3¢-48).
39	449	Steel skelp, grooved.....	60390	307	0.5¢ lb. (0.35¢ lb.)	28-53.
40	334	Rope, sisal, ¾ inch diameter.....	34170	1005a	2¢ (1¢ lb.)	16-24.
41	363	Kerosene.....	50650	1733	Free.	Free.
42	778	Starch, laundry.....	28150	83	1.5¢ lb.	20-49.
43	767	Plate glass mirror, 12 by 24 inches, beveled.....	52300	223	45¢.	45.
44	333	Rope, manila, 1 pound, ¾ inch diameter.....	34175	1005b	40¢ (20¢).	20-40.
45	382	Plows, walking, 1-horse.....	78600	1604	Free.	Free.
46	702c	Dinner sets.....	23502	212	10¢ doz. and 70¢.	84-93.
47	749	Wood pulp, unbleached.....	46000	1716	Free.	Free.
48	264	Nainsook, muslin, cotton.....	30508	904b	60¢ lb.	34-43.
49	220	Harness leather.....	63030	1530b(3)	12½¢ (10¢).	10-12½.
50	190c	Shoes.....	63519	1530b	20¢.	20.
51	341c	Carpet yarn, jute, 14-16.....	32441	1003	4¢ lb.	59.6-63.
52	410	Machine bolts.....	62050	330	1¢ per lb.	25-35.
53	295c	Rayon.....	58840	1306	45¢ lb. and 60¢ (45¢).	75-102 (75-82).
54	35	Apples.....	13110	734	25¢ bn. (15¢ bn.)	5-28 (14-28).
55	448	Sheets, galvanized, steel.....	60548	309	2¢ lb. and 20¢.	22-26.
56	512	Siding, ¾ inch by 8 inches, red cedar.....	41199	1803(1)	Free.	Free.
57	679	Carpets, Brussels, 5-frame, wool.....	36742	1117a	60¢.	60.
58	765	Oil, neutral.....	50750	1733	Free.	Free.
59	100	Crackers, plain soda.....	10751	733	30¢.	30.
60	567c	Glass, window.....	52088	219	Various per lb.	37-50.
61	205c	Shoes, women's.....	63520	1530b	20¢.	20.
62	682	Linoleum, rug, felt base, 9 by 12.....	39810	1020	35¢.	35.
63	186	Olive oil, edible.....	14240	53	8¢ lb.	50-82 (60-82).

## GROUP 6

1	771	Rubbers, men's.....	20311	1537b	25¢.	25.
2	768	Rubber heels.....	20084	1537b	25¢.	25.
3	683	Linoleum, inlaid.....	39800	1020	42¢.	42.
4	121	Hammer, 1-pound.....	13315	735	35¢.	35.
5	419	Apples.....	13110	734	25¢ bn. (15¢ bn.)	45.
6	689	Oil cloths, table.....	39714	907	30¢.	30.
7	350c	Coke.....	50880	1650	Free.	Free.
8	124	Pears, canned.....	13369	749	35¢.	35.
9	229	Staple.....	09520	397	45¢.	45.
10	422	Door knobs, metal.....	62099	397	45¢.	45.
11	750	Soda, bleached, wood pulp.....	46090	1716	Free.	Free.

TABLE II.—Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931-36 inclusive—Continued

## GROUP 6—Continued

No.	Bureau of Labor Statistics No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
12	499	Fire brick	53905	201a	25% (15%)	15-25.
13	320	Lumber, oak	41199	1903	Free	Free.
14	546	Copal, manila	21099	1686	do	Do.
15	447	Auto body sheets, No. 20	60552	304	30% (20%)	20-30.
16	680	Carpets, Wilton	30714	1117a	60%	60.
17	503	Silica brick	53906	2001	\$1.25 per M	4-11.
18	688	Oil cloths, 12-inch	39714	907	30%	30.
19	231	Collars, men's soft	31135	919	37.5%	37½.
20	290	Traveling bags	06509	1531	35%	35.
21	197	Shoes, men's calf	65509	15306	20%	20.
22	123	Peaches, canned	13365	745	35%	35.
23	618	Coal-tar products, naphthalene, flake, pound	80108	1651	Free	Free.
24	359c	Gasoline	30610	1733	do	Do.
25	217	Topcoats, 18-ounce	36401	1115a	50c lb. and 50%	56-58.
26	452	Steel, structural shapes	60810	312	0.2c lb.	15-27.
27	202c	Shoes, men's	03509	15306	20%	20.
28	424	Nails, wire	61121	331	15%	15.
29	38	Oranges, 125-200	13330	743	1c lb.	21-38.
30	163	Fish, salmon, canned	60671	718b	25%	25.
31	157	Cocoa beans	15010	1653	Free	Free.
32	743	Book paper, per 100 pounds	47120	1310	0.25c lb. and 10%	18-22.
33	407	Steel barrels, weight 45 pounds, 35 gallons	62999	397	45%	35.
34	240	Overcoat, 30-ounce 3-button, yoke lined, heavy	36401	1115a	50c lb. and 50%	56-68.
35	122	Cherries, canned 2½", 24 to case	13170	747	9.5c lb. and 40% (20%)	72-113 (95-113).
36	162	Salmon, pink, No. 1, 48 to case	60671	718b	25%	25.
37	412	Stove bolts	62550	330	1c lb.	25-35.
38	438	Steel plates, 14-inch	60551	304	0.5c lb. (50c)	16-34.
39	446	Steel sheets, cold-rolled, annealed	60542	309	0.95c lb. (0.80c lb.)	31-50.
40	408	Steel rollers	60421	304	0.5c lb. (0.4c lb.)	29-33.
41	437	Planes, jackplane	61572	396	45%	45.
42	90	Milk, evaporated, 16-ounce in case	04000	708a	1.5c lb.	17-48.
43	411	Plow bolts, 2 inches by ¾ inch	62050	330	1c lb.	25-35.
44	311	Dress goods, women's wool	36332	1109	50c lb. and 55%	40-72.
45	647	Menthol	81270	51	do	19-25.
46	401	Bar iron	60213	303	0.8c (1½c lb.)	16-26.
47	514	Cypress, 4 by 4 inches, 1,000 feet	41199	1903.11	Free	Free.
48	125	Pineapples, canned, 2½"	13091	747	3c lb.	40-72.
49	260	Filling sateen, 36 inches, 4 37 yards to pound	306900	904c	47½%	47½.
50	160	Coffee	15110	1654	Free	Free.
51	764	Cylinder oil, 48-54 pounds to dozen	30750	1733	do	Do.
52	153	Poultry, fresh, 48-54 pounds to dozen	00251	910	30% (1c)	25-43 (31-43).
53	252	Table damask, cotton, 1.92 yards per pound	30823	910	30%	30.
54	159	Coffee	15110	1654	Free	Free.
55	178	Corn starch, 48 1-pound packages	28150	83	2.5c per lb.	2-77.
56	708	Tumblers, 8-10 ounces	52762	2187	60%	60.
57	553	Putty, 1-5 pound tins	84026	20	0.75c lb. (0.5c lb.)	30-73.
58	134	Beans, canned, 18 ounces	12392	765	3c lb.	30-65 (46-65).
59	291	Underwear, cotton, 12-12½ pounds	31121	917	45% (30%)	30-45.
60	659	Campbair, 10-pound cases	82840	51	1c lb.	8-5.
61	152	Poultry, dressed	00259	712	10c lb. (6c lb.)	25-43 (31-43).
62	692	Pillow cases, 64 by 64	30861	911b	2%	25.

## GROUP 7

1	405	Steel, sheet bars	60800	304	0.3c lb. (0.25c lb.)	20-44.
2	280	Toweling, cotton, 4-ounce (bleached)	30518	904	Various	34-43.
3	167	Fish, salmon, smoked	00750	720a	25%	25.
4	164	Fish, cod, canned (salmon)	00675	718b	25%	25.
5	288	Hosiery, rayon, 33-gauge	38401	1309	45c lb. and 65%	75-117.
6	562	Doors, pine	42899	412	33.3%	33½.
7	617	Logwood extract, solid	25315	38	15%	15.
8	678	Carpets, Axminster, ¾ yard wool	30711	1117a	60%	60.
9	30	Eggs	00880	713	10c doz	54-74.
10	309	Dress goods, women's 9½-ounce, wool	36051	1109b	50c lb. and 55%	86-87.
11	22c	Poultry, live	00150	711	8c lb. (4c lb.)	16-29.
12	338	Pig iron, binder, steel, 50-pound bale	19050	1309	3c and 15% (1c lb. and 7½%)	70-90.
13	429	Tie iron, ferromanganese, 80%	60631	301	\$1.125 ton	3-4.
14	526	California redwood, 4 by 4, dressed or rough	41199	1803	Free	Free.
15	292	Underwear, cotton, 12-pound	31123	917	45%	45.
16	635	Oil, palm, crude	14301	54	1c lb.	22-33.
17	675	Comforters, sateen cover, woolfilling	36104	1111	33c and 37½%	65-67.
18	701	Tablecloths, 64 by 64	30823	910	30%	30.
19	510	Lumber, fir	41040	401	\$1 M bd. ft. (50c)	17-35.
20	250	Men's work pants, 2.65 yards to pound	31131	919	45%	31-123.
21	135	Corn, canned	12499	775	35%	35.
22	513	Lumber, chestnut, 4 by 4, common	41199	1803	Free	Free.
23	491	Water closets, metal, enameled	61415	339	5c lb. and 30%	36-59.
24	641	Chlorine	83075			(Negligible imports.)
25	40c	Hay	11010	779	\$5 ton (\$3)	41-72 (54-72).
26	582	Tar, pine	21193	97	1c lb.	8-18 (10-18).
27	461	Wood screws, No. 10, 1-inch iron	62882	338	25%	25.
28	504	Drain tile, clay, 1,000 feet	53872	202a	70%	70.
29	175	Pepper, black	15512	781	5c lb.	11-25 (11-19).
30	44	Milk, 3.7 percent	00380	707	6.5c gal.	22-43.
31	242	Shirts, 3.85 yards to pound	31131	919	45%	45.
32	98	Bread, before baking	10790	1029	Free	Free.
33	260	Gingham, 6.37 yards per pound (bleached)	30578	904	Various	34-43.
34	356	Fuel oil, 36-40	50550	1733	Free	Free.
35	404	Steel, merchant bars	60881	304	0.25c lb. (0.4c lb.)	19-26.
36	198	Brick, common building	53900	201b	\$1.25 M	4-11 (4-10).
37	327	Burlap	32470	1008	1c lb.	14-15.
38	27c	Eggs	00880	713	10c doz	54-74.

TABLE II.—Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931-36 inclusive—Continued

GROUP 7—Continued				Tariff information		
No.	Bureau of Labor Statistics No.	Commodity with brief description	Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
39	525	Lumber, poplar.....	41199	1803	Free	Free.
40	547	Pigments, red lead, dry.....	84317	72	2.75¢ lb.	31-71.
41	745	Tissue paper, white.....	47289	1904	6¢ lb. and 25 <sup>00</sup> / <sub>100</sub> ¢	31-39.
42	306c	Silk yarn, thrown.....	37992	1203	20 <sup>00</sup> / <sub>100</sub> ¢	20.
43	365	Petroleum, crude.....	50510	1733	Free	Free.
44	138	Beans, canned, string, 2's.....	12392	765	3¢ lb.	46-65.
45	249	Faint, men's serge, 12½-ounce.....	36401	1115a	50¢ lb. and 50 <sup>00</sup> / <sub>100</sub> ¢	56-58.
46	427c	Pig iron.....	60030	301	\$1.125 ton	7-12.
47	774	Soap, 100 11-ounce cakes.....	87199	80	15 <sup>00</sup> / <sub>100</sub> ¢	15.
48	738	Linseed meal.....	11150	730	3¢ lb.	22-39 (28-39).
49	358	Gasoline, 54-58.....	50610	1733	Free	Free.
50	742	Box board ton, 85 lb.....	41199	1803(1)	do.	Do.
51	310	Flannel, wool.....	39032	1109	50¢ lb. and 55 <sup>00</sup> / <sub>100</sub> ¢	77-85 (77-81).
52	243	Boy's suits, all wool, 12-14-ounce.....	36401	1115a	50¢ lb. and 50 <sup>00</sup> / <sub>100</sub> ¢	56-58.
53	290	Hosiery, silk, 74-thread.....	37370	1208	60 <sup>00</sup> / <sub>100</sub> ¢	60.
54	143	Lamb, fresh.....	00220	702	7¢ lb.	39-117.
55	144	Mutton, dressed.....	00210	702	5¢ lb. and 55 <sup>00</sup> / <sub>100</sub> ¢	35-102.
56	313	Dress goods, women's wool.....	36032	1109	50¢ lb. and 55 <sup>00</sup> / <sub>100</sub> ¢	77-85 (77-81).
57	266	Percale, gray, yard 38½-inches wide.....	30578	904b	Various	34-43.
58	219	Leather, kid, glazed.....	03335	1530e	25 <sup>00</sup> / <sub>100</sub> ¢	25.
59	406	Steel bars, cold-rolled, finished.....	60081	315	0.525¢ lb.	20-21 (neg.).
60	261c	Muslin, bleached.....	30513	904b	Various	34-43.
61	480	Copper sheet, hot-rolled.....	64300	381	2.5¢ lb. and 4¢ lb.	7-20.
GROUP 8						
1	506	Tile, hollow, building.....	53852	202a	70 <sup>00</sup> / <sub>100</sub> ¢	70.
2	403	Reinforcing bars, ¾-inch rolled.....	60051	304	3¢ lb. (0.25¢)	20-45.
3	244	Men's suits, 15-ounce serge.....	36401	1115a	50¢ lb. and 50 <sup>00</sup> / <sub>100</sub> ¢	56-58.
4	366	Petroleum, crude.....	50510	1733	Free	Free.
5	766	Neutral oil.....	50750	1733	do.	Do.
6	591	Acid, stearic, distilled.....	08206	1	25 <sup>00</sup> / <sub>100</sub> ¢	25.
7	657	Bones, ground, 60 percent bone phosphate.....	85110	1627	Free	Free.
8	258	Cotton flannel, bleached, 4.5 yards per pound.....	30578	904	Various	34-43.
9	493	Radiator.....	62069	307	45 <sup>00</sup> / <sub>100</sub> ¢	45.
10	741	Boxboards, Manila lined chip.....	40929	1740	Free	Free.
11	94	Bread, before baking.....	10790	1623	do.	Do.
12	50	Seed, timothy.....	24130	763	2¢ lb. (1¢)	10-31.
13	485	Yellow brass tube, seamless.....	64583	384	8¢ lb. and 4¢ lb.	32-67.
14	287	Hosiery, cotton, 23-needle, 5-ounce.....	31101	911b	25 <sup>00</sup> / <sub>100</sub> ¢	56.
15	549	Lighting, powered.....	81215	72	2 ½¢ lb.	(Negligible 1931-35.)
16	440	Rivets, large ½-inch and more.....	62054	332	1¢ lb.	8-35.
17	270c	Sheeting, bleached, 104.....	305	904	Various	34-43.
18	527	Lumber, spruce.....	41060	401	\$1 M bd ft. (50¢)	17-26.
19	674	Blankets, 4-5 pounds.....	36104	1111	33¢ and 37½¢	65-67.
20	696	Sheets.....	30860	911b	25 <sup>00</sup> / <sub>100</sub> ¢	25.
21	332	Cotton rope, awning.....	32570	923	Free	Free.
22	182	Tea, Formosa.....	15210	1783	do.	Do.
23	108	Glucose, corn sirup, 42°.....	16542	503	2¢ lb.	17-35.
24	475	Lead, pipe.....	65050	392	2.375¢ lb.	34-54.
25	276	Percale, print, 4.75 yards to pound.....	305	904	Various	34-43.
26	318c	Suitings, serge.....	30630	1109	50¢ lb. and 1 50 <sup>00</sup> / <sub>100</sub> ¢	85-86.
27	451	Steel strips, cold-rolled.....	60999	313	2¢ lb. and 25 <sup>00</sup> / <sub>100</sub> ¢	26-29.
28	296c	Raw silk.....	37020	1763	Free	Free.
29	86c	Cheese.....	00469	710	7¢ lb.	44-52 (47-52).
30	222c	Leather.....	63800	1530b(1)	12½¢	12½.
31	141c	Meat, beef.....	00180	701	6¢ lb.	49-87 (49-73).
32	672	Blankets, cotton, 2 pounds.....	30843	911a	20 <sup>00</sup> / <sub>100</sub> ¢	30.
33	221	Leather, tanned.....	03041	1530b(4)	15 <sup>00</sup> / <sub>100</sub> ¢	15.
34	316	Overcoating, per yard, 28-ounce.....	30601	1109	50¢ lb. and 55 <sup>00</sup> / <sub>100</sub> ¢	86-94 (86-87).
35	129	Peaches, dried.....	13362	745	2¢ lb.	Negligible.
36	656	Ammonia, sulphate.....	838110	6	75¢ lb.	3-11.
37	580	Window sash, white pine.....	42809	412	33 3 <sup>00</sup> / <sub>100</sub> ¢	33½.
38	259	Cotton flannel, unbleached.....	30478	904b	Various	36 8-50.3.
39	127	Apricots, dried.....	13312	735	2¢ lb.	17-23.
40	478	Copper rods, round, 1½-3-inch.....	64300	384	2½¢ lb. and 4¢ lb.	7-20.
41	476	Quicksilver, flask, 1/75.....	69620	386	25¢ lb.	21-49.
42	278	Tire fabrics.....	32326	904c	do.	25.
43	322	Suitings, 12-ounce serge.....	30630	1109	50¢ lb. and 50 <sup>00</sup> / <sub>100</sub> ¢	85-86.
44	245	Suits, serge, 15-ounce.....	36401	1115a	50¢ lb. and 50 <sup>00</sup> / <sub>100</sub> ¢	56-58.
45	118	Rice, clean.....	10530	727	2½¢ lb.	85-117.
46	130	Frames, dried.....	13352	748	2¢ lb.	13-22.
47	673	Blankets, cotton, part wool, 3½-pound.....	30843	911a	do.	30.
48	172	Oleomargarine, uncolored.....	00605	709	14¢ lb.	74-139.
49	524	Lumber, ponderosa pine.....	41070	401	\$1 M bd ft. (50¢)	17-18.
50	747	Wood pulp, unbleached.....	40400	1746	Free	Free.
51	539	Carbon black.....	84201	71	20 <sup>00</sup> / <sub>100</sub> ¢	20.
52	486	Brass wire, round.....	64586	316a	25 <sup>00</sup> / <sub>100</sub> ¢	25.
53	253	Denims, cotton, 2 2 yards to pound.....	305	904	do.	34-43.
54	256	Duck, 8-ounce, base price 0.25¢.....	305	904	do.	33-77 (33-67).
55	91	Milk, powdered skim.....	00411	708b	5¢ lb.	Free.
56	126	Apples, evaporated.....	13301	734	2¢ lb.	Free.
57	740	Boxboard, chip.....	46929	1750	Free	Free.
58	482	Silver bar.....	64580	381	do.	Do.
59	477	Yellow brass rods, 5/8 to 2½-inch, rod.....	11010	779	85 ton.	11-66.
60	39	Hay, alfalfa.....	50760	1733	Free	40-72 (50-72).
61	784	Paraffin wax.....	64580	381	4¢ lb.	Free.
62	479	Brass, 2 to 8-inch sheets.....	64580	381	4¢ lb.	11-66.

TABLE II.—Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931–36 inclusive—Continued

No.	Bureau of Labor Statistics No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
1	709	Tubs, galvanized iron	63999	397	45%	45.
2	103c	Flour, wheat	10720	729	\$1.04 100 lbs.	30-196.
3	102	Flour, rye	10926	728	45c 100 lbs.	8-35 (10-35).
4	691	Pails, galvanized iron, 10-quart	6269	397	45%	45.
5	517	Overcoating, wool, 18-ounce	39651	1109	50c lb. and 55%	86-94 (86-87).
6	340	Twine, java sisal	34175	1005b	40% (20%)	20-40.
7	286	Hosiery, cotton, 164-needle	31101	916a	50%	50.
8	324	Yarns, worsted, white	35701	1107	40c lb. and 45%	77-82.
9	329	Jute, raw	32410	1084	Free	Free.
10	555	Shellac	21072	1707	do	Do.
11	325c	Woolen yarn	35754	1107	40c lb. and 45%	75-80.
12	114	Macaroni and spaghetti (tins)	10771	725	30c	18-22.
13	431	Pig iron, No. 2	60450	301	\$1.125 ton	7-12.
14	277	Ticking, 2.05 yards to pound	304'S	204b	Various.	36.8-50.3.
15	279	Tire fabrics, carded, 10-5	32326	904e	25%	25.
16	621	Quebracho extract, solid, 63 percent	23440	58	15%	15.
17	257	Duck No. 8, 36-inch, base price 64 cents	60290	706	6c lb.	34-43.
18	637	Alcohol, ethyl, grain, 188 proof	82313	4	1 1/2 gal.	3-12.
19	552	Linseed oil, raw	22240	53	4 1/2 lb.	77-124.
20	140	Beef, cured, 200-pound barrel	00190	701	do	29-76 (29-70).
21	151	Veal, fresh	00190	701	do	61-169.
22	98	Oatmeal	10922	726	8c 100 lbs.	9-17.
23	174	Peanut butter, 56-pound tins	13409	759	7c lb.	21-50 (negligible).
24	166	Fish, mackerel, canned	06722	719(4)	25%	25.
25	215	Goatskins	02310	1765	Free	Free.
26	148	Pork, hams	00300	703	3.25c lb.	11-16.
27	471	Babbit metal, per pound	65061	392	2.125c lb.	2-7.
28	281c	Cotton yarn	302'S	901	Various.	28-33.
29	305	Floor tiles, ceramic unglazed	53811	2023	50%	50.
30	272c	Sheeting	304'S	904b	Various.	36.8-50.3.
31	255	Drillings, cotton, 2.85 yards to pound	305	904	do	34-43.
32	588	Oil red, oleic acid	00216	1	20%	20.
33	12	Calves	00100	701	2 1/2 lb. (1 1/2)	16-89 (46-89).
34	68c	Butter	00440	709	14c lb.	53-89.
35	357	Gasoline	50610	1733	Free	Free.
36	512	Suiting, 12-ounce, 56-inch	50651	1109	50c lb. and 55%	86-87.
37	614	Copper sulphate, blue vitriol 99 percent	82630	1659	Free	Free.
38	54	Potatoes, sweet	12119	774	50%	50.
39	634	Palm oil	22430	1732	Free	Free.
40	339	Cotton twine	32370	923	40%	40.
41	268	Print cloths	305	904	Various.	34-43.
42	517	Lumber, gum, plain sap, 4 by 4	41199	1803	Free	Free.
43	773	Soap flakes, laundry	87199	80	15%	15.
44	36	Apples	13110	734	2 1/2 bu. of 50 lbs. (15c)	82-28 (14-28).
45	55c	Potatoes, white	12041	771	7 1/2 100 lbs.	82-80 (53-89).
46	284c	Cotton yarn	302'S	901b	Various.	28-33.
47	49	Flaxseed, bushel of 56 pounds	22350	762	6 1/2 bu.	56-99 (61-99).
48	239	Overalls, cotton	31135	919	37.5%	37.5.
49	183	Coconut oil, crude	22425	54	2c lb.	14.35.
50	15c	Steers	00105	701	3c lb. (2c lb.)	40-67.
51	529	Cypress, shingles	41922	1760	Free	Free.
52	267	Print cloths 7.6 yards to pound, 27-inch	905	904	Various.	34-43.
53	20	Lambs	00120	702	\$3 each	25-55.
54	149	Mess pork, 200-pound barrel	00310	703	3.25c	8-12 (8-11).
55	24c	Cotton, middling	30621	783	7c lb.	39-75 (44-75).
56	528	Lumber, cedar shingles	41921	1760	Free	Free.
57	776	Powdered soap, laundry	87199	80	15%	15.
58	519	Lumber, maple, hard	41194	402	8 1/2 (4 1/2)	4-8.
59	58	Potatoes, white	12041	771	0.75c lb.	43-89 (53-89).
60	473	Lead, pig, desilverized	30550	392	2.125c lb.	69-108.
61	42	Hops	28100	780	24c lb.	29-176.
62	265	Osaburg, 30-inch, 7-ounce	305	904	Various.	34-43.

## GROUP 10

1	161	Copra, dried	22320	1727	Free	Free.
2	13c	Cows	00101	701	3c lb. (2c)	40-67.
3	248	Pants, boys', wool	36400	1115a	3 1/2c and 45%	58-61.
4	184	Vegetable oil, corn, crude	14220	53	20%	20.
5	434	Pipe, cast-iron 6-inch	06010	327	35c (15%)	15-25.
6	748	Wood pulp, unbleached	46000	1716	Free	Free.
7	4	Oats, bushel of 32 pounds	10410	726	16c bu.	42-100.
8	47	Seed, alfalfa	24010	753	8c (4c lb.)	30-108 (40).
9	349	Coke	50880	1650	Free	Free.
10	355	Fuel oil, 24-26 gravity	50550	1733	do	Do.
11	511	Lumber, pine, lath, 3/4-inch	41070	401	\$1 M bd. ft. (50c)	17-18.
12	488	Zinc, pig	55582	394	\$1.75 lb.	52-65.
13	145	Bacon	00300	703	3.25c lb.	11-16.
14	59c	Wool	35060	1101a	0.24c lb.	112-139.
15	516	Lumber, fir	41040	401	\$1 M bd. ft. (50c)	17-35.
16	487	Copper wire, No. 8	63508	316a	25%	25.
17	737	Cottonseed meal	11140	750	3c lb.	27-57.
18	6c	Wheat, bushel of 60 pounds	10665	729	4 1/2 bu.	43-84.
19	19c	Sheep	00120	702	\$3 each	25-55.
20	173	Olives oil	06362	701	1c lb.	10.
21	1	Barley, malting, bushel of 48 pounds	10290	722	20c bu.	23-60.
22	472	Copper, ingot, electrolytic	64170	1658	Free	Free.
23	188	Vegetable oil, soybean, crude	64	3.5c lb.	70-127 (79-127).	17-35.
24	515	Lumber, fir	41040	401	\$1 M bd. ft. (50c)	17-35.
25	216	Kips	02350	153a	10%	10.
26	645	Glycerin	82910	42	2c lb. (1.66c lb.)	6-33 (17-33).
27	483	Solder	65061	392	2.125c lb.	2-7.

TABLE II.—Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931-36 inclusive—Continued

GROUP 10—Continued

No.	Bureau of Labor Statistics No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
28	52	Beans, dried.....	11920	765	3c lb.	98-133.
29	170	Lard.....	00360	703	3c lb.	12-27 (12-20).
30	150	Pork, hams.....	00300	703	3 25c lb.	11-16.
31	335	Sisal.....	34010	1684	Free.	Free.
32	187	Peanut oil, crude.....	14270	54	4c lb.	65-66.
33	185	Cottonseed oil.....	14231	54	3c lb.	63-66.
34	322	Lumber, pine.....	41070	401	\$1 M bd. ft. (50c).	17-18.
35	181	Tallow, edible.....	08155	701	5c lb.	8-16 (11-16).
36	116	Corn meal, granulated.....	10919	724	5c lb.	4-42.
37	5	Rye, bushel of 56 pounds.....	10440	728	15c bu.	10-32.
38	65c	Wool.....	35060	1101a	24c lb.	112-139.
39	211	Cow hides.....	02010	1530a	10c.	10.
40	631	Tallow.....	08155	701	0.5c lb.	8-16 (11-16).
41	46	Peanuts.....	13680	759	4 25c lb.	144-209.
42	328	Remp, manila.....	39012	1504a	15c.	15.
43	484	Tin, pig.....	65510	1786	Free.	Free.
44	736	Millfeed, bran.....	11902	730	10c.	10.
45	551	China wood oil.....	22606	53	20c.	20.
46	534	Rosin, yard basis.....	21891	90	5c.	5.
47	17c	Hogs.....	00130	703	2c lb.	16-28.
48	665	Tankage, ton.....	09750	1780	Free.	Free.
49	739	Millfeed.....	11802	730	10c.	10.
50	212c	Hides, steers.....	02010	1530a	10c.	10.
51	445	Steel, scrap, old material.....	60040	301	75c ton.	5-12.
52	214	Calfskins, 8-15 pounds.....	02070	1530a	10c.	10.
53	51	Tobacco, leaf.....	20450	601	3 5c lb.	66-115.
54	146	Pork, cured.....	00310	703	3 25c lb.	11-16.
55	2c	Corn.....	10310	724	25c bu.	47-57.
56	48	Seed, clover.....	24010	763	8c lb.	49-108.
57	762	Asbestos pipe covering.....	55280	15014	25c.	25.
58	470	Antimony.....	66511	376	2c lb.	18-56.
59	147	Pork, cured.....	00310	703	3 25c lb.	8-12 (8-11).
60	217	Sheep pelts.....	02320	1765	Free.	Free.
61	115	Corn meal.....	10919	725	.50c lb.	4-42.
62	113	Hominy grits.....	10919	724	.50c lb.	4-42.
63	751c	Rubber, crude.....	20110	1697	Free.	Free.



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## APPENDIX 6.—CHANGES IN HOURLY EARNINGS, WEEKLY HOURS, AND EMPLOYMENT 1929, 1932-36<sup>1</sup>

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### The Character of the Data

Until recent years the data on hourly earnings for industrial workers and weekly hours worked have been unsatisfactory both from the point of view of the number of industries covered and the frequency with which they were covered. The Bureau of Labor Statistics made various spot studies in certain industries but no attempt was made to establish a continuous series. In 1932 the Bureau began to make good the deficiencies by collecting monthly figures on earnings and hours for a considerable range of manufacturing industries and some nonmanufacturing industries. The early results of this new venture were, of course, less satisfactory than the later.

In this study both the earlier and later figures collected by the Bureau of Labor Statistics, up to 1936, were compared with estimates for 1929 in order to show the changes which had occurred over the period. The 1929 estimates were based on the employment and pay-roll data which the United States Bureau of Labor Statistics had been collecting for one week in each month for some years before 1929. By dividing the pay-roll figures by the employment figures weekly earnings were obtained. Data on weekly hours worked, however, were not available in the Bureau's records. These were obtained by multiplying the prevailing hours worked as reported by the Census for 1929 with the percent of full time worked as reported by the Bureau. Having the weekly earnings and the weekly hours, the hourly earnings were derived by simple division.

### Wage and Employment Results, 1929, 1932-36

Table I presents hourly earnings, weekly hours worked, weekly earnings, workers employed, and man-hours worked for 44 manufacturing industries in 1929, and annually from 1932 to 1936. The 44 industries include 15 industries, as defined by the Census, which employed, in 1935, over 100,000 persons each, 30 which employed from 25,000 to 100,000 each, and 9 under 25,000. All combined these industries employed 4,359,-

000 wage earners or 60 percent of all wage earners employed in manufacturing.<sup>2</sup> The large and medium-sized industries included in the table employed more than two-thirds of the wage earners employed by the large and medium-sized industries listed in appendix 7. The small industries included in the table covered less than 10 percent of the wage earners employed by industries employing less than 25,000 persons.

The hourly earnings in 1929 in each of the 44 industries were derived, as just indicated, by dividing weekly earnings as computed from the employment and payroll figures of the Bureau of Labor Statistics by the weekly hours as computed from the Census and Bureau figures. Another possible method calculating hourly earnings was to divide the Census wages by annual man-hours as derived by multiplying the weekly hours (obtained as described above) first by 52 and then by the average number employed. The results obtained by the first method are compared with the results obtained by this second method in table I-A. In 38 of the 44 industries, the hourly earnings as calculated by the second method are within 10 percent of the figures obtained by the first; in the remaining six industries they are subject to serious question. However, no conclusions from the results on all these industries have been drawn in this report which assume a greater reliability of these figures than that indicated above.

In table II, the industries are combined, first on the basis of durable goods industries, and semi- and non-durable goods industries, and then, on the basis of concentration. Industries in which the four largest enterprises employed at least 30 percent of all workers are considered concentrated; the others, not concentrated. The hourly earnings for all industries in each class are unweighted averages. Weighted averages can be derived from table I on the basis of the number employed in each industry. There is no significant difference, however, between the two types of averages.

<sup>2</sup> Some of the industries for which wage data are presented combine two or more industries separately reported in the *Census of Manufactures* for 1935, and some exclude industries separately reported, at one time or another, between 1929 and 1935. The 44 industries given in table I are equivalent to more than 44 on the basis of the Census classification. Thus the number of wage earners in any one of the 44 industries in table I might not coincide with the number in the Census industry having the same name.

<sup>1</sup> Appendix 6 was prepared by Edward B. Mittelman, assisted by Nancy Hart and Paul A. Fischer.

TABLE 1.—Hourly earnings, weekly hours, weekly earnings, workers employed, man-hours worked in certain selected industries, 1929, 1932-36

Industry—Classifications	1929		1932		1933		1934		1935		1936	
	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index
Iron and steel and their products, not including machinery:												
Blast furnaces, steel works, and rolling mills:												
Hourly earnings (cents).....	65.5	100.0	52.7	80.5	53.1	81.1	63.2	96.5	66.4	101.4	67.1	102.4
Weekly hours.....	49.1	100.0	26.1	53.2	32.5	66.2	30.5	62.1	34.9	71.1	40.9	83.3
Weekly earnings (dollars).....	32.16	100.0	13.75	42.8	17.26	53.7	19.28	60.0	23.17	72.0	27.44	85.3
Workers employed.....	419,534	100.0	234,939	56.0	288,945	68.9	346,955	82.7	374,808	89.3	436,315	104.0
Man-hours worked.....	20,599,119	100.0	6,131,908	29.8	9,390,712	45.6	10,582,128	51.4	13,080,799	63.5	17,845,284	86.6
Cast-iron pipe:												
Hourly earnings (cents).....	54.2	100.0	44.4	81.9	45.3	83.6	48.9	90.2	49.0	90.4	49.3	91.0
Weekly hours.....	43.1	100.0	32.5	75.4	29.7	68.9	29.7	68.9	31.0	71.9	38.2	88.6
Weekly earnings (dollars).....	23.36	100.0	14.43	61.8	13.45	57.6	14.52	62.2	15.19	65.0	18.83	80.6
Workers employed.....	19,741	100.0	10,404	52.7	9,454	47.9	13,029	66.0	13,543	68.6	16,879	85.5
Man-hours worked.....	850,837	100.0	338,130	39.7	280,784	33.0	386,961	45.5	419,833	49.3	644,778	75.8
Hardware:												
Hourly earnings (cents).....	52.9	100.0	50.6	95.7	46.5	87.9	53.8	101.7	54.9	103.8	55.8	105.5
Weekly hours.....	49.0	100.0	31.4	64.1	35.2	71.8	33.1	67.6	37.1	75.7	40.3	82.2
Weekly earnings (dollars).....	25.92	100.0	15.89	61.3	16.37	63.2	17.81	68.7	20.37	78.6	22.49	86.8
Workers employed.....	52,306	100.0	30,285	57.9	32,550	62.2	41,269	78.9	41,473	79.3	45,454	86.9
Man-hours worked.....	2,562,994	100.0	950,949	37.1	1,145,760	44.7	1,366,004	53.3	1,538,648	60.0	1,831,796	71.5
Steam and hot-water heating apparatus and steam fittings:												
Hourly earnings (cents).....	62.8	100.0	54.3	86.5	51.6	82.2	58.9	93.8	59.1	94.1	59.1	94.1
Weekly hours.....	46.5	100.0	30.7	66.0	33.5	72.0	34.5	74.2	37.3	80.2	41.4	89.0
Weekly earnings (dollars).....	29.20	100.0	16.67	57.1	17.29	59.2	20.32	69.6	22.04	75.5	24.47	83.8
Workers employed.....	39,621	100.0	20,484	51.7	22,301	56.3	22,980	58.0	27,081	68.4	34,906	88.1
Man-hours worked.....	1,842,576	100.0	628,859	34.1	747,084	40.6	792,810	43.0	1,010,121	54.8	1,445,108	78.4
Stoves:												
Hourly earnings (cents).....	62.1	100.0	49.8	80.2	48.2	77.6	53.8	86.6	56.4	90.8	58.2	93.7
Weekly hours.....	45.3	100.0	32.9	72.6	35.7	78.8	35.1	77.5	38.0	83.9	41.7	92.1
Weekly earnings (dollars).....	28.13	100.0	16.38	58.2	17.21	61.2	18.88	67.1	21.43	76.2	24.27	86.3
Workers employed.....	46,616	100.0	25,825	55.4	30,193	64.8	37,712	80.9	41,739	89.5	45,078	96.7
Man-hours worked.....	2,111,705	100.0	849,642	40.2	1,077,890	51.0	1,323,691	62.7	1,586,082	75.1	1,879,753	89.0
Structural and ornamental work:												
Hourly earnings (cents).....	59.2	100.0	54.3	91.7	48.0	81.1	57.9	97.8	58.6	99.0	58.4	98.6
Weekly hours.....	51.0	100.0	32.2	63.1	32.8	64.3	33.3	65.3	35.2	69.0	41.7	81.8
Weekly earnings (dollars).....	30.19	100.0	17.48	57.9	15.74	52.1	19.28	63.9	20.63	68.3	24.35	80.7
Workers employed.....	54,947	100.0	24,561	44.7	21,377	38.9	26,924	49.0	27,243	49.6	34,562	62.9
Man-hours worked.....	2,802,297	100.0	790,864	28.2	701,166	25.0	896,569	32.0	958,954	34.2	1,441,235	51.4
Machinery, not including transportation equipment:												
Agricultural implements: <sup>1</sup>												
Hourly earnings (cents).....	59.2	100.0	48.4	81.8	46.7	78.9	54.1	91.4	59.2	100.0	61.0	103.0
Weekly hours.....	50.2	100.0	31.8	63.3	33.7	67.1	36.5	72.7	39.5	78.7	39.7	79.1
Weekly earnings (dollars).....	29.72	100.0	15.39	51.8	15.74	53.0	19.75	66.5	23.38	78.7	24.22	81.5

See footnotes at end of table.

TABLE I.—Hourly earnings, weekly hours, weekly earnings, workers employed, man-hours worked in certain selected industries, 1929, 1932-36—Continued

Industry—Classifications	1929		1932		1933		1934		1935		1936	
	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index
Machinery, not including transportation equipment—Continued.												
Agricultural implements—Continued.												
Workers employed.....	41,693	100.0	10,374	24.9	11,140	26.7	18,790	45.1	26,450	63.5	28,914	69.4
Man-hours worked.....	4,091,483	100.0	329,893	15.8	375,415	18.9	685,845	32.8	1,044,775	50.0	1,147,886	54.9
Electrical machinery, apparatus, and supplies:												
Hourly earnings (cents).....	63.7	100.0	59.3	93.1	57.1	89.6	61.1	95.9	62.3	97.8	62.4	98.0
Weekly hours.....	47.8	100.0	30.9	64.6	33.1	69.2	33.3	69.7	36.8	77.0	39.9	83.5
Weekly earnings (dollars).....	30.45	100.0	18.32	60.2	18.90	62.1	20.35	66.8	22.94	75.3	24.90	81.8
Workers employed.....	277,462	100.0	132,300	47.6	130,857	47.1	158,427	57.0	170,641	64.0	192,890	71.9
Man-hours worked.....	13,285,628	100.0	4,088,070	30.8	4,331,397	32.6	5,273,619	39.7	6,610,759	49.8	7,973,616	60.0
Furniture and machine-shop products:												
Hourly earnings (cents).....	63.5	100.0	55.1	86.8	53.2	83.8	58.7	92.4	59.9	94.3	60.1	94.6
Weekly hours.....	48.6	100.0	30.0	61.7	32.7	67.3	34.7	71.4	37.8	77.8	42.4	87.2
Weekly earnings (dollars).....	30.49	100.0	16.53	53.6	17.40	56.4	20.37	66.0	22.64	73.4	25.48	83.6
Workers employed.....	154,441	100.0	208,588	43.9	219,517	48.3	291,297	64.1	316,167	69.6	381,730	84.0
Man-hours worked.....	22,082,533	100.0	6,237,640	28.3	7,178,296	32.5	10,108,096	45.8	11,951,113	54.1	16,187,352	73.3
Machine tools:												
Hourly earnings (cents).....	64.1	100.0	60.4	94.2	56.8	88.6	60.4	94.2	62.4	97.3	63.6	96.2
Weekly hours.....	51.3	100.0	31.0	60.4	33.9	66.1	37.2	72.5	41.5	80.9	44.6	86.9
Weekly earnings (dollars).....	32.88	100.0	18.72	56.9	19.26	58.6	22.47	68.3	25.90	78.5	28.37	86.3
Workers employed.....	47,391	100.0	11,943	25.2	12,714	26.8	21,421	45.2	28,165	59.4	36,633	77.3
Man-hours worked.....	2,431,158	100.0	570,233	15.2	631,005	17.7	796,861	32.8	1,168,848	48.1	1,633,832	67.2
Radios and phonographs:												
Hourly earnings (cents).....	48.2	100.0	46.8	97.1	44.7	92.7	54.0	112.0	54.2	112.4	54.0	112.0
Weekly hours.....	48.4	100.0	36.5	75.4	36.7	75.8	33.7	69.6	35.4	72.9	37.1	76.1
Weekly earnings (dollars).....	23.53	100.0	17.18	73.2	16.40	70.3	18.20	78.0	19.46	83.4	20.14	86.0
Workers employed.....	65,106	100.0	25,622	39.3	32,879	50.4	50,299	77.1	44,792	68.7	49,544	76.0
Man-hours worked.....	3,155,486	100.0	938,208	29.6	1,296,659	38.2	1,669,994	53.7	1,608,033	51.0	1,948,178	58.6
Transportation equipment:												
Automobiles:												
Hourly earnings (cents).....	69.1	100.0	46.2	66.9	59.3	85.8	55.8	80.9	57.9	83.9	59.5	86.2
Weekly hours.....	47.6	100.0	31.9	67.0	35.2	73.9	33.6	70.6	35.4	74.4	37.0	77.1
Weekly earnings (dollars).....	32.89	100.0	20.03	60.9	20.87	63.5	23.18	70.5	27.32	83.4	29.64	90.1
Workers employed.....	447,448	100.0	243,412	54.4	243,614	54.4	336,169	74.6	387,801	86.7	371,529	83.1
Man-hours worked.....	21,289,523	100.0	7,764,843	36.5	8,575,213	40.3	11,967,278	56.2	14,464,977	67.9	14,315,416	67.2
Shipbuilding:												
Hourly earnings (cents).....	64.6	100.0	63.5	98.3	60.8	94.1	72.8	112.7	75.1	116.3	76.2	118.0
Weekly hours.....	46.5	100.0	34.4	74.0	31.0	66.7	31.0	66.7	32.7	70.3	35.7	76.8
Weekly earnings (dollars).....	30.04	100.0	22.84	72.7	18.85	62.7	22.35	75.1	24.56	81.8	27.20	90.5
Workers employed.....	55,089	100.0	36,249	65.8	30,885	56.1	41,846	76.0	44,830	81.4	58,449	106.1
Man-hours worked.....	2,561,638	100.0	1,246,966	48.7	957,455	37.4	1,256,926	49.1	1,465,941	57.2	2,086,629	81.5
Nonferrous metals and their products:												
Brass, bronze, and copper products:												
Hourly earnings (cents).....	56.9	100.0	50.7	89.1	49.5	87.0	56.1	98.6	57.9	101.8	59.5	104.6
Weekly hours.....	50.1	100.0	32.6	65.1	36.0	71.9	35.8	71.5	39.3	78.4	41.6	83.0
Weekly earnings (dollars).....	28.51	100.0	16.53	58.0	17.82	62.5	20.08	70.4	22.75	79.8	24.75	86.8
Workers employed.....	79,183	100.0	40,700	51.4	47,744	60.3	56,457	71.3	62,993	79.5	71,581	90.4
Man-hours worked.....	3,967,068	100.0	1,936,820	33.4	1,730,224	43.4	2,021,161	50.9	2,473,346	62.3	2,937,770	75.1
Silverware and plated ware:												
Hourly earnings (cents).....	61.5	100.0	51.1	83.1	47.8	77.7	54.4	88.5	58.0	94.3	58.4	95.0
Weekly hours.....	54.7	100.0	36.7	67.0	37.1	67.4	36.8	67.3	38.8	70.8	43.3	79.0
Weekly earnings (dollars).....	29.9	100.0	18.75	62.5	17.73	60.9	20.02	68.8	21.63	74.4	22.78	77.2
Workers employed.....	15,755	100.0	9,126	58.0	9,177	58.3	10,716	68.1	10,194	64.8	9,079	57.6
Man-hours worked.....	744,296	100.0	334,924	45.0	340,467	45.7	394,349	53.0	380,296	51.1	354,081	47.6
Stamped and enameled ware:												
Hourly earnings (cents).....	48.3	100.0	41.8	86.5	42.0	87.0	49.9	103.3	50.8	105.2	51.8	107.2
Weekly hours.....	49.4	100.0	38.5	77.9	37.5	75.9	35.6	72.1	38.0	76.9	41.0	83.0
Weekly earnings (dollars).....	24.35	100.0	16.09	66.4	15.75	65.0	17.76	74.4	19.30	80.9	21.24	89.0
Workers employed.....	40,000	100.0	26,460	66.0	32,302	81.8	42,360	105.9	50,034	125.0	57,120	142.8
Man-hours worked.....	1,976,000	100.0	1,016,400	51.4	1,121,325	61.3	1,508,016	76.3	1,900,532	96.2	2,341,920	117.5
Lumber and allied products:												
Lumber: Millwork:												
Hourly earnings (cents).....	49.3	100.0	41.1	83.4	39.7	80.5	45.5	92.3	44.9	91.1	46.8	94.9
Weekly hours.....	47.7	100.0	34.6	72.5	36.1	75.7	34.7	72.7	38.8	81.3	43.3	90.8
Weekly earnings (dollars).....	23.31	100.0	14.22	60.5	14.33	60.9	15.78	67.1	17.42	74.4	20.26	86.1
Workers employed.....	90,154	100.0	37,515	41.4	55,383	39.3	39,298	43.6	48,297	53.6	59,128	65.6
Man-hours worked.....	4,299,392	100.0	1,924,069	30.0	1,277,597	29.7	1,368,641	31.7	1,873,924	43.6	2,560,242	59.5
Lumber: Sawmills:												
Hourly earnings (cents).....	39.6	100.0	32.9	83.1	34.3	86.6	43.5	109.8	44.9	113.4	46.7	117.9
Weekly hours.....	24.9	100.0	12.30	49.4	57.4	21.9	63.8	61.2	33.4	37.5	41.5	79.9
Weekly earnings (dollars).....	20.59	100.0	11.94	58.0	32.83	62.3	14.57	70.8	16.79	81.5	19.38	94.1
Workers employed.....	419,084	100.0	151,280	36.1	186,367	45.2	230,915	55.1	255,290	60.9	263,778	70.1
Man-hours worked.....	21,792,368	100.0	5,491,791	25.2	7,082,326	32.5	7,735,652	35.5	9,545,602	43.8	12,191,787	55.9
Stone, clay, and glass products:												
Brick, tile, and terra cotta:												
Hourly earnings (cents).....	49.3	100.0	38.8	78.7	36.7	74.4	43.7	88.6	45.0	91.3	45.3	91.9
Weekly hours.....	49.4	100.0	31.7	64.2	32.2	65.2	31.8	64.4	28.8	58.2	41.9	84.8
Weekly earnings (dollars).....	24.35	100.0	12.30	50.5	11.82	48.5	13.90	57.1	11.61	47.7	18.98	77.9
Workers employed.....	90,657	100.0	32,595	34.8	31,943	34.1	38,242	41.9	44,583	47.6	60,784	64.0
Man-hours worked.....	4,626,656	100.0	1,033,198	22.3	1,028,597	22.2	1,247,896	27.0	1,150,241	24.9	2,546,808	55.0
Cement:												
Hourly earnings (cents).....	54.2	100.0	44.1	81.4	46.7	86.2	56.2	103.7	57.2	105.5	57.9	106.8
Weekly hours.....	53.6	100.0	39.8	74.3	34.1	63.6	32.8	61.2	33.4	62.3	38.5	71.8
Weekly earnings (dollars).....	29.05	100.0	17.55	60.4	15.92	54.8	18.43	63.4	19.39	66.7	22.24	76.7
Workers employed.....	33,368	100.0	16,918	50.7	15,829	47.4	19,834	59.5	20,698	62.0	23,691	71.0
Man-hours worked.....	1,788,525	100.0	673,336	37.6	539,769	30.2	651,211	36.4	701,692	39.2	912,104	51.0
Glass:												
Hourly earnings (cents).....	53.9	100.0	47.8	88.7	45.2	83.9	55.7	103.3	58.4	108.3	60.9	113.0
Weekly hours.....	48.2	100.0	37.3	77.4	33.9	70.5	33.8	70.1	35.4	73.4	36.9	76.3
Weekly earnings (dollars).....	23.68	100.0	18.83	80.6	17.90	66.6	18.83	72.3	20.67	79.6	22.41	86.3
Workers employed.....	67,327	100.0	41,597	61.6	49,797	73.7	63,881	94.8	67,138	99.4	68,675	101.7
Man-hours worked.....	3,254,801	100.0	1,551,568	47.7	1,757,712	54.9	2,159,178	66.3	2,376,688	73.0	2,937,240	77.6

See footnotes at end of table.

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TABLE I.—Hourly earnings, weekly hours, weekly earnings, workers employed, man-hours worked in certain selected industries, 1929, 1932-36—Continued

Industry—Classifications	1929		1932		1933		1934		1935		1936	
	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index
Textiles and their products:												
Carpets and rugs:												
Hourly earnings (cents).....	52.8	100.0	45.4	86.0	45.5	86.2	55.0	104.2	56.4	106.8	56.3	106.6
Weekly hours.....	47.9	100.0	31.6	66.0	36.7	76.6	31.2	65.1	36.5	76.2	36.7	76.6
Weekly earnings (dollars).....	25.29	100.0	14.35	56.7	16.70	66.0	17.16	67.9	20.59	81.4	20.66	81.7
Workers employed.....	32,623	100.0	17,943	55.0	21,296	65.3	23,325	71.5	27,533	84.7	28,504	88.6
Man-hours worked.....	1,562,642	100.0	566,999	36.3	781,563	50.0	727,740	46.6	1,008,604	64.5	1,060,777	67.9
Cotton goods:												
Hourly earnings (cents).....	30.6	100.0	23.9	78.1	27.7	90.5	37.6	122.9	37.7	123.2	36.8	120.3
Weekly hours.....	51.1	100.0	44.5	87.1	41.4	81.0	33.4	65.4	34.6	67.7	37.5	73.4
Weekly earnings (dollars).....	15.64	100.0	10.64	68.0	11.47	73.3	12.56	80.3	13.04	83.4	13.80	88.2
Workers employed.....	424,916	100.0	296,591	69.8	379,445	89.3	393,472	92.6	369,062	86.9	381,969	89.9
Man-hours worked.....	21,713,208	100.0	13,198,300	60.8	15,709,023	72.3	13,141,965	60.5	12,769,545	58.8	14,324,962	66.0
Dyeing and finishing textiles:												
Hourly earnings (cents).....	52.4	100.0	41.9	80.0	42.5	81.1	52.3	90.8	53.5	102.1	51.7	98.7
Weekly hours.....	47.4	100.0	44.5	93.9	42.4	89.5	34.2	72.2	35.3	74.5	38.9	82.1
Weekly earnings (dollars).....	24.84	100.0	18.65	75.1	18.02	72.5	17.89	72.0	18.89	76.0	20.11	81.0
Workers employed.....	79,327	100.0	60,447	76.2	66,300	83.6	71,315	89.0	71,380	90.0	67,190	84.7
Man-hours worked.....	3,760,100	100.0	2,689,892	71.5	2,811,502	74.8	2,438,973	64.9	2,519,714	67.0	2,615,691	69.5
Knit goods:												
Hourly earnings (cents).....	39.0	100.0	32.8	84.1	36.5	93.6	46.4	119.0	47.9	122.8	47.4	121.5
Weekly hours.....	47.5	100.0	42.8	90.1	39.3	83.8	33.3	69.8	34.6	72.9	36.2	76.2
Weekly earnings (dollars).....	19.44	100.0	14.04	72.6	14.45	74.7	15.68	81.1	16.57	85.7	17.25	88.2
Workers employed.....	208,488	100.0	174,266	83.6	189,698	91.0	204,944	98.3	219,776	105.4	232,464	111.5
Man-hours worked.....	10,341,005	100.0	7,459,699	72.1	7,512,041	72.6	6,947,107	67.0	7,604,250	73.5	8,461,690	81.8
Silk and rayon goods:												
Hourly earnings (cents).....	43.1	100.0	34.3	79.6	35.6	82.6	44.3	102.8	44.7	103.7	42.6	98.8
Weekly hours.....	49.1	100.0	38.7	78.8	37.1	75.6	33.4	68.0	34.8	70.9	36.2	73.7
Weekly earnings (dollars).....	21.16	100.0	13.27	62.7	13.21	62.4	14.80	69.9	15.56	73.5	15.42	72.9
Workers employed.....	130,467	100.0	93,023	71.3	110,322	84.6	119,869	91.9	125,908	96.5	121,073	92.8
Man-hours worked.....	6,405,930	100.0	3,569,990	56.2	4,062,946	63.9	4,004,627	62.5	4,381,598	68.4	4,382,543	68.4
Woolen and worsted goods:												
Hourly earnings (cents).....	46.9	100.0	38.0	81.0	39.6	84.4	49.3	105.1	49.3	105.1	50.1	106.8
Weekly hours.....	47.5	100.0	42.8	90.1	39.3	83.8	33.3	70.7	34.6	72.9	36.2	76.2
Weekly earnings (dollars).....	22.28	100.0	16.26	73.0	16.33	73.4	16.42	73.7	15.14	68.1	15.14	68.1
Workers employed.....	146,959	100.0	99,638	67.8	127,227	86.6	119,331	81.2	161,117	109.6	136,952	106.8
Man-hours worked.....	6,980,552	100.0	4,264,506	61.1	5,254,475	75.3	3,973,722	56.9	5,929,032	84.9	5,681,662	81.4
Clothing, men's:												
Hourly earnings (cents).....	77.1	100.0	58.0	75.2	(9)	-----	58.0	81.0	59.5	83.1	56.0	78.2
Weekly hours.....	73.9	100.0	63.7	90.2	(9)	-----	27.8	70.9	30.4	77.6	32.2	82.1
Weekly earnings (dollars).....	26.07	100.0	18.87	72.2	-----	-----	16.12	57.4	18.09	69.4	18.03	68.2
Workers employed.....	188,069	100.0	115,625	61.5	164,047	87.2	178,289	94.8	196,417	104.4	207,816	110.5
Man-hours worked.....	7,372,305	100.0	5,394,512	73.2	-----	-----	4,956,434	67.2	5,971,077	81.0	6,691,675	90.8
Leather and its manufactures:												
Boots and shoes:												
Hourly earnings (cents).....	46.2	100.0	41.2	89.2	-----	(9)	-----	-----	51.2	110.8	49.9	108.0
Weekly hours.....	46.8	100.0	40.4	86.3	-----	(9)	-----	-----	33.5	75.9	35.6	76.1
Weekly earnings (dollars).....	21.62	100.0	16.64	77.0	-----	-----	-----	-----	18.18	84.1	17.76	82.1
Workers employed.....	205,640	100.0	179,729	87.4	190,914	92.8	202,144	98.3	202,113	98.3	201,938	98.2
Man-hours worked.....	9,626,952	100.0	7,261,052	75.4	-----	-----	-----	-----	7,175,012	74.6	7,188,993	74.7
Leather:												
Hourly earnings (cents).....	51.2	100.0	42.0	82.0	44.6	87.1	53.6	104.7	56.2	109.8	56.0	109.4
Weekly hours.....	49.8	100.0	42.0	84.3	41.1	82.5	38.8	73.9	39.2	76.7	39.2	78.7
Weekly earnings (dollars).....	25.50	100.0	18.02	70.7	18.33	71.9	19.72	77.4	21.17	84.2	21.95	86.1
Workers employed.....	49,932	100.0	37,699	75.5	44,191	88.5	49,083	98.3	50,877	101.9	50,831	101.5
Man-hours worked.....	2,486,614	100.0	1,583,358	63.7	1,816,250	73.0	1,806,254	72.6	1,943,501	78.2	1,992,575	80.1
Food and kindred products:												
Confectionery:												
Hourly earnings (cents).....	38.5	100.0	35.1	91.2	36.6	95.1	41.8	108.6	43.6	113.2	41.8	108.6
Weekly hours.....	48.2	100.0	41.3	85.7	37.2	77.2	36.3	75.3	36.7	76.1	39.5	82.0
Weekly earnings (dollars).....	18.56	100.0	14.50	78.1	13.62	73.4	15.17	81.7	16.00	86.2	16.51	89.0
Workers employed.....	63,401	100.0	46,673	73.5	50,600	79.7	51,503	81.2	52,106	82.1	51,118	80.5
Man-hours worked.....	3,060,748	100.0	1,927,595	63.0	1,882,655	61.5	1,871,737	61.2	1,912,400	62.5	2,119,161	66.0
Flour:												
Hourly earnings (cents).....	52.8	100.0	45.3	85.8	46.0	87.1	53.5	101.3	54.8	103.8	53.6	101.5
Weekly hours.....	51.1	100.0	47.9	93.7	43.4	84.9	38.6	75.5	39.4	77.1	43.8	85.7
Weekly earnings (dollars).....	26.98	100.0	21.70	80.4	19.96	74.0	20.65	76.5	21.59	80.0	23.48	87.0
Workers employed.....	27,028	100.0	22,028	81.5	23,207	85.9	26,396	98.4	26,495	98.0	26,241	97.1
Man-hours worked.....	1,381,131	100.0	1,055,141	76.4	1,007,184	72.9	1,026,606	74.3	1,043,903	75.6	1,149,487	83.2
Ice cream:												
Hourly earnings (cents).....	61.2	100.0	54.1	88.4	52.3	85.5	56.2	91.8	55.1	90.0	55.5	90.7
Weekly hours.....	54.3	100.0	51.8	95.4	47.6	87.7	44.1	81.2	45.5	83.8	47.4	87.3
Weekly earnings (dollars).....	33.23	100.0	28.02	84.3	29.90	74.9	24.78	71.6	25.07	75.4	26.31	79.2
Workers employed.....	22,399	100.0	15,075	67.3	14,367	64.1	16,844	75.2	17,208	77.3	18,166	81.1
Man-hours worked.....	1,216,266	100.0	780,885	64.2	683,869	56.2	742,820	61.1	785,514	64.7	861,068	70.8
Slaughtering and meat packing:												
Hourly earnings (cents).....	53.5	100.0	46.5	86.9	46.2	86.4	53.5	100.0	56.0	104.7	56.5	105.6
Weekly hours.....	48.9	100.0	46.3	94.7	43.3	88.5	40.8	83.4	40.3	82.4	42.2	86.4
Weekly earnings (dollars).....	26.16	100.0	21.53	82.3	20.00	76.5	21.83	83.4	22.57	85.3	23.84	91.1
Workers employed.....	122,505	100.0	102,169	83.4	113,193	92.4	140,023	114.3	116,620	95.2	127,773	104.3
Man-hours worked.....	5,960,494	100.0	4,730,425	79.0	4,901,257	81.8	5,712,938	95.4	4,699,786	78.5	5,392,021	90.0
Tobacco manufactures:												
Chewing, smoking, and snuff:												
Hourly earnings (cents).....	11.39	100.0	32.1	81.3	34.2	86.6	39.0	98.7	43.2	109.4	44.4	112.4
Weekly hours.....	18.3	100.0	13.61	74.3	13.27	69.8	13.46	73.8	15.08	79.4	15.85	86.1
Weekly earnings (dollars).....	10,811	100.0	11,287	104.4	10,223	94.6	10,746	99.4	10,077	92.4	10,152	95.9
Man-hours worked.....	522,171	100.0	478,509	91.6	396,652	76.0	370,737	71.0	351,685	67.4	362,426	69.4
Cigars and cigarettes:												
Hourly earnings (cents).....	35.6	100.0	31.7	89.0	32.3	90.7	36.7	103.1	39.5	111.0	40.5	113.8
Weekly hours.....	47.0	100.0	39.2	83.4	38.4	81.7	35.4	75.3	35.0	74.5	35.7	76.0
Weekly earnings (dollars).....	16.73	100.0	12.43	74.3	12.40	73.1	12.99	77.6	13.82	82.7	14.46	86.4
Workers employed.....	105,308	100.0	76,308	72.5	77,102	73.2	83,825	79.6	76,848	72.9	82,822	78.6
Man-hours worked.....	4,949,476	100.0	3,116,714	63.0	2,960,717	59.8	2,967,405	60.0	2,816,310	56.9	2,962,493	59.9

See footnotes at end of table.

TABLE I.—Hourly earnings, weekly hours, weekly earnings, workers employed, man-hours worked in certain selected industries, 1929, 1932-36—Continued

Industry—Classifications	1929		1932		1933		1934		1935		1936	
	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index
Paper and printing:												
Boxes, paper:												
Hourly earnings (cents).....	47.3	100.0	44.4	93.9	43.5	92.0	49.6	104.9	49.7	103.1	48.1	101.7
Weekly hours.....	48.8	100.0	45.0	85.0	39.4	80.7	36.6	75.0	38.1	78.1	40.9	83.8
Weekly earnings (dollars).....	23.08	100.0	18.43	79.9	17.14	74.3	18.15	78.6	18.94	82.1	19.67	85.2
Workers employed.....	55,654	100.0	41,796	75.1	47,220	84.8	53,064	95.4	55,276	99.3	58,047	104.3
Man-hours worked.....	2,715,945	100.0	1,734,534	63.9	1,860,468	68.5	1,943,240	71.6	2,106,016	77.5	2,374,122	87.4
Paper and pulp:												
Hourly earnings (cents).....	56.1	100.0	45.2	80.6	44.3	79.0	51.5	91.8	52.9	94.3	53.7	95.7
Weekly hours.....	48.9	100.0	41.2	84.3	40.6	83.0	36.4	74.4	38.9	79.6	41.6	85.1
Weekly earnings (dollars).....	27.43	100.0	18.62	67.9	17.99	65.6	18.75	68.4	20.58	75.0	22.34	81.4
Workers employed.....	128,049	100.0	98,854	77.2	107,298	83.8	128,823	99.7	126,371	98.2	127,665	99.7
Man-hours worked.....	6,261,596	100.0	4,072,785	65.0	4,356,299	69.6	4,507,157	72.0	4,939,172	78.9	5,310,904	84.8
Printing and publishing—newspaper and periodical:												
Hourly earnings (cents).....	84.7	100.0	77.6	91.6	76.5	90.3	84.5	99.8	89.2	105.3	92.2	108.9
Weekly hours.....	47.5	100.0	42.6	89.7	39.6	83.4	37.3	78.5	36.9	77.7	37.0	77.9
Weekly earnings (dollars).....	40.23	100.0	33.06	82.2	30.29	75.3	31.52	78.3	32.92	81.8	34.11	84.8
Workers employed.....	128,669	100.0	108,325	83.7	109,087	84.1	116,564	89.9	115,664	91.5	124,474	96.0
Man-hours worked.....	6,158,850	100.0	4,623,165	75.1	4,318,345	70.1	4,347,837	70.6	4,378,440	71.1	4,605,538	74.8
Chemicals and allied products, and petroleum refining:												
Chemicals:												
Hourly earnings (cents).....	54.6	100.0	54.5	99.8	56.6	103.7	61.6	112.8	63.6	116.5	65.3	119.6
Weekly hours.....	51.6	100.0	42.2	82.2	41.0	79.5	38.6	74.8	39.7	76.9	40.6	78.7
Weekly earnings (dollars).....	28.17	100.0	23.11	82.0	23.21	82.4	23.78	84.4	25.25	89.6	26.51	94.1
Workers employed.....	62,199	100.0	43,294	69.6	53,101	85.5	63,931	106.0	63,838	105.9	70,782	113.8
Man-hours worked.....	3,209,468	100.0	1,835,538	57.2	2,190,790	67.9	2,544,937	79.3	2,613,769	81.4	2,873,749	89.5
Fertilizers:												
Hourly earnings (cents).....	36.0	100.0	30.8	85.6	27.8	77.2	36.3	100.8	35.4	98.3	35.9	99.7
Weekly hours.....	53.2	100.0	42.3	79.5	41.1	77.3	33.5	63.0	34.1	64.1	39.5	74.2
Weekly earnings (dollars).....	19.15	100.0	13.03	68.0	11.43	59.7	12.16	63.5	12.07	63.0	14.18	74.0
Workers employed.....	20,926	100.0	10,421	49.8	13,063	62.4	17,662	84.4	17,473	83.5	16,762	80.1
Man-hours worked.....	1,113,293	100.0	440,808	39.6	536,889	48.2	591,677	53.1	595,829	53.5	662,069	59.5
Petroleum refining:												
Hourly earnings (cents).....	64.7	100.0	63.2	97.7	65.5	101.2	75.0	115.9	80.1	123.8	82.7	127.8
Weekly hours.....	51.3	100.0	42.2	82.3	37.9	73.9	34.9	68.0	35.0	68.2	35.8	69.8
Weekly earnings (dollars).....	33.19	100.0	26.67	80.4	24.92	74.8	26.18	78.9	28.04	84.5	29.61	89.2
Workers employed.....	80,596	100.0	63,913	79.3	69,047	85.7	77,333	96.2	77,602	96.0	78,226	98.3
Man-hours worked.....	4,134,575	100.0	2,697,129	65.2	2,616,881	63.3	2,705,962	65.4	2,709,070	65.5	2,896,291	68.6
Rayon and allied products:												
Hourly earnings (cents).....	42.1	100.0	39.8	94.5	42.3	100.5	50.3	119.5	51.4	122.1	53.2	126.4
Weekly hours.....	49.2	100.0	43.5	88.4	41.2	83.7	37.0	75.2	37.9	77.0	38.6	78.5
Weekly earnings (dollars).....	20.71	100.0	17.31	83.6	17.43	84.2	18.61	89.9	19.48	94.1	20.54	99.2
Workers employed.....	39,106	100.0	34,296	87.7	44,306	113.3	46,888	119.9	50,530	129.3	50,964	129.3
Man-hours worked.....	1,924,015	100.0	1,491,876	77.5	1,825,467	94.9	1,734,856	90.2	1,915,845	99.6	1,951,770	101.4
Rubber products:												
Rubber tires and inner tubes:												
Hourly earnings (cents).....	67.3	100.0	62.5	92.9	64.2	95.4	77.9	115.8	84.2	125.1	87.3	129.7
Weekly hours.....	44.5	100.0	42.3	95.0	31.6	71.0	30.7	69.0	32.3	72.6	35.4	79.6
Weekly earnings (dollars).....	29.65	100.0	20.31	67.8	20.29	67.7	23.92	79.9	27.20	90.8	30.90	103.2
Workers employed.....	83,293	100.0	45,295	54.4	52,976	63.6	60,199	72.3	57,128	68.6	56,780	70.5
Man-hours worked.....	3,705,204	100.0	1,472,088	39.7	1,674,042	45.2	1,818,109	49.9	1,845,234	49.8	2,077,680	56.1

<sup>1</sup> As of 1929, 1931, 1933 census classifications and carried forward for later years on a comparable basis.

<sup>2</sup> Phonographs only.

<sup>3</sup> Radios only for March to December.

<sup>4</sup> *Wages and Hours in the Motor Vehicle Industry, 1932, Monthly Labor Review*, June 1933, p. 1371.

<sup>5</sup> Compiled from data reported by the Silverware Manufacturers Institute to N.R.A., Division of Research and Planning, reproduced in *Wages and Hours in American Industry*, N.R.A. Source Material in 3 volumes, by Solomon Barkin and Anne Page, Labor Studies Section, Vol. III, p. 1117, Division of Review, Washington, D. C., 1936.

<sup>6</sup> Includes clothing (except work), men's and clothing, work, men's on the census basis for 1929 and 1931, and carried forward for later years on a comparable basis.

<sup>7</sup> *Wages and Hours in the Men's Clothing Industry, 1928, Bulletin 593*, U. S. Bureau of Labor Statistics, p. iv. Ibid. 1930, Bulletin 557, p. 49.

<sup>8</sup> *Wages and Hours of Labor in the Men's Clothing Industry 1932, Bulletin 594*, U. S. Bureau of Labor Statistics, p. 59.

<sup>9</sup> Not available.

<sup>10</sup> *Wages and Hours in the Boot and Shoe Industry, 1919-1932, Bulletin 579*, U. S. Bureau of Labor Statistics, p. 78.

<sup>11</sup> *Cigarette, Snuff, Chewing, and Smoking Tobacco Manufacturing Industry*, by Donald Yakeley, p. 53, mime. Miscellaneous N.R.A. files 1934, p. 65. This source was used because it appeared to be more reliable than the figure derived from the procedure generally followed. The figure derived from that procedure was 33.7 cents. This was less than the hourly earnings in cigars and cigarettes, and the relationship generally is the other way around.

<sup>12</sup> The N.R.A. results based on data supplied by Chemical Alliance, Inc., involving 36,237 workers in 1929 and 23,597 in 1932 gave 55.4 cents for 1929 and 52.3 cents for 1932 and 51.3 cents for 1929 and 41.0 hours for 1932. *Wages and Hours in American Industry*, N.R.A. Source Material in 3 volumes, by Solomon Barkin and Anne Page, Labor Studies Section, Vol. I, pp. 213, 218, Division of Review, Washington, D. C., 1936.

TABLE I-A.—Hourly earnings for 1929 according to this study (Table I) and according to the Census

INDUSTRY—CLASSIFICATIONS	Hourly earnings according to this study (cents)	Hourly earnings according to the Census	Ratio of Census hourly earnings to hourly earnings of this study (percent)
Iron and steel and their products, not including machinery:			
Blast furnaces, steel works, and rolling mills.	65.5	68.2	104.1
Cast-iron pipe.	54.2	51.0	94.1
Hardware.	52.9	50.8	96.0
Steam and hot-water heating apparatus and steam fittings.	62.8	61.6	98.1
Stoves.	62.1	59.3	95.5
Structural and ornamental work.	59.2	60.2	101.7
Machinery, not including transportation equipment:			
Agricultural implements.	59.2	54.2	91.6
Electrical machinery, apparatus, and supplies.	63.7	56.6	88.9
Foundry and machine-shop products.	63.5	60.7	95.6
Machine tools.	64.1	60.4	94.2
Radios and phonographs.	48.2	50.9	105.6
Transportation equipment:			
Automobiles.	69.1	66.3	95.9
Shipbuilding.	64.6	66.3	102.6
Nonferrous metals and their products:			
Brass, bronze, and copper products.	56.9	56.7	99.6
Silverware and plated ware.	61.5	58.3	94.8
Stamped and enameled ware.	48.3	48.8	101.0
Lumber and allied products:			
Lumber: millwork.	49.3	52.1	105.7
Lumber: sawmills.	39.6	37.2	93.9
Stone, clay, and glass products:			
Brick, tile and terra cotta.	49.3	44.6	90.5
Cement.	54.2	52.5	96.9
Glass.	53.9	51.9	96.3
Textiles and their products:			
Carpets and rugs.	52.8	49.2	93.2
Cotton goods.	30.6	28.7	93.8
Dyeing and finishing.	52.4	48.2	92.0
Knit goods.	39.0	39.2	100.5
Silk and rayon goods.	43.1	41.3	95.8
Woolen and worsted goods.	46.9	45.2	96.4
Clothing, men's.	71.6	53.8	75.1
Leather and its manufactures:			
Boots and shoes.	46.2	44.4	96.1
Leather.	51.2	49.0	95.7
Food and kindred products:			
Confectionery.	38.5	35.5	92.2
Flour.	52.8	48.8	92.4
Ice cream.	61.2	53.4	87.3
Slaughtering and meat packing.	53.5	53.2	99.4
Tobacco manufactures:			
Chewing, smoking, and snuff.	39.5	33.0	83.5
Cigars and cigarettes.	35.6	33.3	93.5
Paper and printing:			
Boxes, paper.	47.3	40.4	85.4
Paper and pulp.	56.1	53.2	94.8
Printing and publishing—newspaper and periodical.	84.7	79.1	93.4
Chemicals and allied products, and petroleum refining:			
Chemicals.	54.6	56.7	103.8
Fertilizers.	36.0	30.9	85.8
Petroleum refining.	64.7	61.0	94.3
Rayon and allied products.	42.1	44.7	106.2
Rubber products:			
Rubber tires and inner tubes.	67.3	66.0	98.1

Source: Table I and U. S. Census of Manufactures, 1929.

TABLE I-B.—Classification of industries by durability of product and degree of concentration—1935<sup>1</sup>

## DURABLE GOODS INDUSTRIES

More than 30 percent of all workers in employ of 4 largest enterprises:

Automobiles.	72.4
Agricultural implements.	70.0
Silver and plated ware.	50.4
Blast furnaces, steel works, and rolling mills.	46.5
Ship building.	45.2
Steam and hot water heating apparatus.	41.1
Electrical machinery, apparatus, and supplies.	39.7
Radios and phonographs.	37.6
Brass, bronze, and copper products.	37.4
Glass.	37.1
Cast-iron pipe.	35.7
Hardware.	34.4
Cement.	30.7

Less than 30 percent of all workers in employ of 4 largest enterprises:

Structural and ornamental work.	24.8
Brick, tile, and terra cotta.	14.7
Machine tools.	14.1
Stoves.	13.9
Foundry and machine shop products.	13.9
Stamped and enameled ware.	9.3
Lumber:	
Millwork.	5.1
Sawmills.	3.9

## SEMI-DURABLE AND NON-DURABLE GOODS INDUSTRIES

More than 30 percent of all workers in employ of 4 largest enterprises:

Rubber tires.	79.4
Rayon and allied products.	74.8
Carpets and rugs.	57.9
Chewing and smoking tobacco and snuff.	51.9
Slaughtering and meat packing.	38.7
Petroleum refining.	38.2
Cigars and cigarettes.	37.0
Chemicals.	34.9
Fertilizers.	31.3

Less than 30 percent of all workers in employ of 4 largest enterprises:

Ice cream.	26.6
Woolen and worsted goods.	22.4
Boots and shoes.	21.0
Flour.	19.5
Leather.	18.9
Dyeing and finishing, textiles.	15.8
Paper and pulp.	14.9
Newspaper printing and publishing.	14.1
Silk and rayon goods.	11.0
Confectionery.	9.8
Cotton goods.	9.2
Paper boxes.	8.8
Men's clothing.	6.4
Knit goods.	5.3

<sup>1</sup> Based on appendix 7, table I

Table II.—Employment, hourly earnings, and hours worked in manufacturing industries, 1929, 1932, and 1936, by durability of product and degree of concentration

DURABLE CONCENTRATED									
Industries	1929			1932			1935		
	Number employed	Hourly earnings (cents)	Man-hours worked	Number employed	Hourly earnings (cents)	Man-hours worked	Number employed	Hourly earnings (cents)	Man-hours worked
Total.....	1,614,353	59.0	78,002,746	852,410	52.0	26,301,469	1,415,161	61.4	55,969,886
Blast furnaces.....	419,534	67.5	20,599,119	234,939	52.7	6,131,908	436,315	67.1	17,845,284
Cast-iron pipe.....	19,741	54.2	850,837	10,404	44.4	338,139	16,879	49.3	644,778
Hardware.....	52,306	52.9	2,502,994	30,285	50.6	950,949	45,474	55.8	1,831,796
Steam and hot-water apparatus.....	39,421	62.8	1,812,576	20,484	54.3	628,859	34,906	59.1	1,445,108
Agricultural implements.....	41,663	59.2	2,091,483	10,374	48.4	329,893	28,914	61.0	1,147,886
Electrical machinery.....	277,942	63.7	13,285,628	132,300	59.3	4,088,070	199,840	62.4	7,973,616
Radios and phonographs.....	65,196	48.2	3,155,886	25,622	46.8	935,203	49,549	54.0	1,848,178
Automobiles.....	447,448	69.1	21,298,325	243,412	62.8	7,764,543	371,829	77.0	14,633,416
Shipbuilding.....	55,089	64.6	2,561,638	36,249	63.5	1,246,966	58,449	76.2	2,086,629
Brass, bronze, etc.....	79,183	56.9	3,967,068	40,700	50.7	1,326,820	71,581	59.5	2,977,770
Silverware.....	15,735	61.5	744,266	9,126	51.1	334,924	9,079	58.4	354,081
Cement.....	33,368	54.2	1,788,525	16,418	44.1	673,336	29,691	57.9	912,104
Glass.....	67,527	53.9	3,254,801	41,597	47.8	1,551,568	68,675	60.9	2,527,240
DURABLE NOT CONCENTRATED									
Total.....	1,246,270	54.4	62,125,499	518,514	46.8	17,100,867	968,812	53.9	49,780,929
Stoves.....	46,616	62.1	2,111,705	25,825	49.8	849,642	45,078	58.2	1,879,753
Structural work.....	54,947	59.2	2,892,297	24,561	54.3	790,864	34,562	58.4	1,441,235
Foundry and machine shops.....	454,441	63.5	22,082,833	208,588	55.1	6,257,640	381,730	69.1	16,185,352
Machine tools.....	47,391	64.1	2,431,158	11,943	60.4	370,223	36,633	63.6	1,633,832
Stamped and enamelware.....	40,600	48.3	1,976,090	26,400	41.8	1,016,400	57,120	51.8	2,341,920
Lumber: Millwork.....	90,134	49.3	4,296,392	37,315	41.1	1,291,069	59,128	46.8	2,590,242
Lumber: Sawmills.....	419,084	59.6	21,792,368	151,299	52.0	5,491,791	293,778	66.7	12,191,787
Brick, tile, and terra cotta.....	93,657	49.3	4,626,656	32,593	38.8	1,033,198	60,783	45.3	2,546,808
SEMI- AND NON-DURABLE CONCENTRATED									
Total.....	557,337	49.6	27,111,208	408,123	45.2	16,830,146	525,846	58.0	29,179,696
Carpets.....	32,623	52.8	1,562,642	17,943	45.4	566,999	28,904	59.3	1,090,777
Meat packing.....	122,505	53.5	5,990,494	102,109	46.5	4,730,425	127,773	56.5	5,392,021
Chewing tobacco.....	70,811	39.5	3,522,171	11,287	32.1	478,569	10,152	44.4	362,426
Cigars and cigarettes.....	105,308	35.6	4,949,476	79,508	31.7	3,116,714	82,983	40.5	2,962,493
Chemicals.....	62,199	54.6	3,209,468	43,291	54.5	1,835,538	70,792	65.3	2,873,749
Fertilizers.....	20,926	36.0	1,113,293	10,421	30.8	440,808	16,762	35.9	662,099
Petroleum refining.....	80,596	64.7	4,134,553	63,632	52.6	2,697,129	79,226	82.7	2,596,291
Rayon and allied products.....	39,106	42.1	1,924,015	34,296	39.8	1,491,876	50,564	53.2	2,461,770
Rubber tires.....	83,293	67.3	3,705,204	45,295	62.5	1,472,088	58,700	87.3	2,077,080
SEMI- AND NON-DURABLE NOT CONCENTRATED									
Total.....	1,860,089	51.5	89,478,172	1,418,999	43.4	50,645,584	1,925,977	52.5	67,658,331
Cotton goods.....	424,916	30.6	21,713,208	296,591	23.9	13,198,300	381,999	36.8	14,324,962
Dyeing and finishing.....	79,327	52.4	3,760,100	60,447	41.9	2,680,892	67,190	51.7	2,613,691
Knit goods.....	208,488	39.0	10,841,065	174,296	32.8	7,459,869	232,464	47.4	8,461,690
Silk and rayon products.....	150,467	43.1	6,465,930	93,023	34.3	3,569,960	121,073	42.6	4,382,943
Woolen and worsted products.....	146,959	46.9	6,980,552	99,638	38.0	4,264,506	156,952	50.1	5,681,662
Men's clothing.....	188,069	71.6	7,372,305	144,625	59.6	5,394,512	207,816	56.0	6,691,675
Boots and shoes.....	205,640	46.2	9,628,652	179,729	41.2	7,361,052	301,938	49.9	7,188,995
Leather.....	49,932	51.2	2,486,614	37,699	42.9	1,583,358	50,831	59.0	1,962,555
Confectionery.....	63,501	38.5	3,066,748	46,673	35.1	1,927,595	51,118	41.8	2,019,161
Flour.....	27,028	52.8	1,381,131	22,028	43.3	1,055,141	26,244	53.6	1,149,487
Ice cream.....	22,899	61.2	1,216,266	15,075	54.1	780,885	18,106	55.5	861,068
Paper boxes.....	55,654	47.3	2,715,915	41,796	44.4	1,734,534	58,047	48.1	2,374,122
Paper and pulp.....	128,049	56.1	6,261,596	98,854	45.2	4,072,785	127,665	53.7	5,310,804
Printing and publishing—newspapers.....	129,660	84.7	6,158,850	108,525	77.6	4,625,165	124,474	92.2	4,605,535

Source: Tables I and I-B.

TABLE II-A.—Index of employment, hourly earnings, and hours worked in manufacturing industries, 1929, 1932, and 1936, by durability of product and degree of concentration

	1929			1932			1936		
	Number employed	Hourly earnings	Man-hours worked	Number employed	Hourly earnings	Man-hours worked	Number employed	Hourly earnings	Man-hours worked
Durable concentrated.....	100.0	100.0	100.0	52.8	88.1	33.7	87.7	104.1	71.7
Durable not concentrated.....	100.0	100.0	100.0	41.6	86.0	27.5	77.7	99.1	65.6
Total durable.....	100.0	100.0	100.0	47.9	87.4	31.0	88.3	102.3	69.0
Semi- and non-durable concentrated.....	100.0	100.0	100.0	73.2	91.1	62.1	94.3	116.9	74.4
Semi- and non-durable not concentrated.....	100.0	100.0	100.0	76.3	84.3	66.7	98.2	101.9	75.6
Total semi- and non-durable.....	100.0	100.0	100.0	75.6	86.8	65.6	97.3	107.7	75.3
All industries.....	100.0	100.0	100.0	60.6	87.0	46.7	89.7	104.8	71.9





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## APPENDIX 7.—DATA ON LARGEST FOUR AND LARGEST EIGHT PRODUCERS IN EACH MANUFACTURING INDUSTRY, 1935<sup>1</sup>

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This Appendix presents the results of a study of unpublished Census compilations made available through the courtesy of the Bureau of the Census. The National Resources Committee assumes full responsibility for the accuracy of the statistics presented in this study, and the Bureau of the Census assumes responsibility for the presentation of the figures in such a manner as to avoid disclosing, even approximately, any information pertaining to an individual company or concern.

In order to measure concentration within each of the Census industries, the reports of all establishments in each industry under a common ownership were combined, and treated as those of a single producer. Information is shown for the four and eight most important producers in each of 275 Census industry classifications.

Special tabulations were prepared from the 1935 Census of Manufactures data, ranking all the producers within each industry according to three criteria, namely, value of products, total persons employed (wage earners plus salaried employees) and "value added by manufacture" within the industry. In the tables presented, industries are grouped according to size based on total number of persons employed. Those employing 100,000 or more persons in 1935 appear in the first section of the tables, those employing between 25,000 and 100,000 are shown in the second section of the tables, and those employing less than 25,000 persons appear in the third section. Within each of these groups on table I, industries are arranged according to the proportion of the total persons employed in each industry by the four producers employing the greatest number of persons in the industry. In table II industries are arranged according to the proportion of the value of product of each industry contributed by the largest four producers in the industry. In many of the industries, the ranking of the eight largest producers by value of products and by "value added by manufacture" was the same. Table III shows only those industries in which the largest four or the largest eight producers ranked according to "value added by manufacture" differed from those in the table showing producers ranked according to value of products.

Six small industries were so concentrated that the data for the largest four and the largest eight producers could not be shown without approximate disclosure of information held confidential by the Bureau of the Census. These industries are listed separately in table III.

In certain industries, particularly the textile indus-

tries, the practice by some manufacturers of letting out work on a contract basis to independent contract shops occasions slight distortion in the relationship between total persons employed and number of wage earners and the value of product, cost of materials, and "value added by manufacture."

In each table data are shown indicating the activity of the largest four and the largest eight producers as reflected in the following items along with the percent which these constitute of the total industry.

1. Number of persons employed (salaried employees and average number of wage earners).

2. Wages and salaries.

3. Wage earners.

4. Wages.

5. Value of product.

6. Cost of materials, containers, fuel, and purchased electric energy.

7. Value added by manufacture.

In these tables, the Census Bureau definition of terms is employed. Where noncensus terms are used in the tables the exact meaning is given in the general description of terms below:

1. *Number of persons employed.*—The figures for the number of "persons employed" as used in this report is the sum of the number of salaried employees as of December 15, and the average number of wage earners for the year. These figures do not include data for persons employed in central administrative offices or proprietors and firm members.

2. *Number of wage earners.*—The figures for the number of wage earners is the quotient of the total man-months reported to the Bureau of the Census, divided by 12, resulting in an average for the year.

3. *Wages.*—The figures shown for this item represent the total amount paid to wage earners during the year.

4. *Value of product.*—The amounts under this heading are the values, at the factory or plant, of all commodities produced (or, for some industries, receipts for work done) during the census year, whether sold, transferred to other plants, or held in stock.

5. *Cost of materials, etc.*—The amounts under this heading include the following census categories: materials, mill and shop supplies and containers, fuel, and purchased electric energy used during the period covered.

6. *Value added by manufacture.*—This figure is calculated by subtracting the cost of materials, supplies, containers, fuel, and purchased electric energy from the value of products.

<sup>1</sup> Appendix 7 was prepared by Grace W. Knott, assisted by Ruth Rosenwald.

7. *Establishment.*—The term "establishment" is used here with the same meaning as that adopted by the Census Bureau. As a rule it signifies a single plant

or factory. In a few cases it refers to two or more plants operated under a common ownership and located in the same city, or in the same county but in

TABLE I.—Concentration in manufacturing ind

[Values in thous

Industry number	Industry	Largest four producers													
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.		Value added by manufacture	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
21 LARGE INDUSTRIES *															
1408	Motor vehicles, not including motorcycles.	118,557	72.4	186,393	74.7	108,793	74.0	167,622	77.2	2,080,334	87.0	1,594,924	88.0	485,410	84.3
1407	Motor-vehicle bodies and motor-vehicle parts.	161,924	62.0	241,401	64.9	152,881	63.5	223,579	68.1	1,076,150	69.4	373,285	73.1	342,865	62.6
1112	Steel-works and rolling-mill products.	179,282	46.0	237,606	46.3	166,280	46.2	206,616	47.0	951,819	49.3	578,380	52.1	373,439	45.5
1303	Electrical machinery, apparatus, and supplies.	88,641	39.7	126,599	43.7	69,721	38.8	86,073	43.5	426,276	44.4	142,079	38.3	284,197	48.2
1202	Meat packing, wholesale.	53,636	38.7	95,639	53.1	41,301	35.4	73,259	53.7	1,313,029	55.6	1,151,767	56.7	161,262	48.5
1502	Railroad repair shops, steam.	51,974	36.0	70,771	35.4	48,833	36.0	63,063	35.2	133,989	36.0	63,203	37.2	70,786	35.1
212	Wool and hair manufactures.	39,446	22.4	37,765	21.3	37,474	22.5	33,969	22.3	164,186	23.1	105,342	24.4	58,844	21.1
904	Boots and shoes, other than rubber.	45,502	21.0	41,804	21.0	43,872	21.7	39,432	23.0	158,822	24.7	86,407	25.9	72,415	23.3
105	Canned and dried fruits and vegetables; preserves, jellies, fruit butters, pickles, and sauces.	20,600	16.3	17,549	19.5	19,475	16.7	14,857	21.1	147,587	22.7	78,645	19.2	68,912	29.7
510	Bread and other bakery products.	38,364	16.0	49,838	17.3	35,608	16.3	44,418	17.9	222,898	18.0	102,176	15.2	120,722	21.4
102	Printing and publishing, newspaper and periodical.	33,003	14.1	70,728	17.0	17,469	14.7	35,574	18.4	242,185	20.3	57,626	24.6	184,569	19.3
407	Paper.	15,195	13.2	17,190	12.2	13,652	13.2	14,200	12.9	98,519	13.8	59,637	13.9	38,882	13.8
213	Men's cotton garments.	14,050	10.9	9,735	11.2	13,405	11.0	8,722	11.8	35,140	10.6	17,333	9.5	17,807	12.0
203	Cotton manufactures.	36,233	9.2	26,263	9.5	35,430	9.2	24,581	9.9	82,831	8.0	49,169	7.8	33,662	8.3
1305	Machinery, not elsewhere classified.	11,927	8.4	11,628	8.8	9,402	8.6	12,867	9.8	40,033	6.9	13,227	6.1	26,806	7.4
215	Men's, youths', and boys' clothing, not elsewhere classified.	10,260	6.1	11,269	6.5	9,416	6.1	9,635	6.6	27,651	4.5	12,592	4.3	15,059	4.6
309	Furniture, including store and office fixtures.	7,877	5.4	6,793	4.7	7,303	5.6	5,926	5.2	23,192	5.3	11,657	5.6	11,535	5.1
234	Knit goods.	12,252	5.3	13,178	6.1	11,728	5.3	12,243	6.7	29,996	4.9	10,439	3.5	19,557	6.3
508	Printing and publishing, book, music, and job.	7,940	4.8	11,986	4.7	6,632	5.2	8,795	5.2	30,876	4.4	7,745	4.0	23,131	4.6
311	Lumber and timber products, not elsewhere classified.	10,444	3.9	10,538	5.0	10,050	3.9	9,780	5.3	24,752	4.5	7,661	3.7	17,091	5.0
216	Women's, misses', and children's apparel, n. e. c.	5,870	2.0	3,865	1.2	5,662	2.2	3,352	1.4	16,631	1.3	8,627	1.4	8,004	1.2
44 MEDIUM INDUSTRIES *															
1652	Cigarettes.	23,478	90.3	19,663	89.1	22,156	90.6	16,425	89.7	723,262	89.7	570,348	89.0	152,914	92.5
603	Rubber tires and inner tubes.	52,172	79.4	80,787	83.2	45,644	79.9	66,080	84.4	361,202	80.9	213,723	80.5	147,479	81.7
629	Rayon and allied products.	40,507	74.8	43,755	74.7	38,299	75.8	38,980	76.9	137,520	74.3	46,742	72.5	90,778	75.2
1123	Tin cans and other tinware, not elsewhere classified.	22,209	70.1	26,072	70.3	19,015	69.2	19,656	70.6	234,086	80.1	167,258	81.1	66,827	77.4
1301	Agricultural implements.	42,765	70.0	57,892	73.6	37,155	70.3	48,306	75.1	210,972	72.4	102,000	73.2	108,972	71.8
201	Carpets and rugs.	17,234	52.2	16,995	52.4	16,031	52.6	16,191	53.2	65,185	51.1	29,356	47.0	35,829	55.0
1410	Ship and boat building, steel and wooden, including repair work.	23,137	45.2	31,447	47.0	20,272	45.2	24,875	44.9	69,392	44.8	27,106	44.8	42,286	44.8
1310	Refrigerators and refrigerating and ice-making apparatus.	19,162	44.8	24,279	47.0	17,202	46.3	20,136	49.8	103,318	46.1	51,440	44.2	51,878	48.1
1119	Steam and hot-water heating apparatus and steam fittings.	13,195	41.1	15,724	40.7	11,579	42.7	12,729	44.2	43,206	38.7	13,802	36.9	29,404	39.6
705	Petroleum refining.	35,246	38.3	56,061	39.1	30,067	38.8	43,620	39.8	701,298	38.2	573,791	38.8	127,367	35.4
1319	Radio apparatus and phonographs.	19,587	37.6	22,645	39.2	16,162	36.1	15,571	36.3	54,349	27.0	24,306	23.4	30,043	30.8
1212	Nonferrous-metal alloys, products, except aluminum, n. e. c.	27,267	37.4	34,323	36.6	23,631	37.6	27,215	37.8	142,358	36.2	83,287	37.9	59,071	34.0
1008	Glass.	27,236	37.1	34,540	40.2	24,731	36.8	29,344	41.1	127,435	44.9	45,574	41.4	81,861	47.1
1009	Chemicals, not elsewhere classified.	28,004	34.9	42,016	35.9	23,417	35.6	30,692	38.3	240,323	35.9	109,103	33.2	131,190	38.6
1109	Hardware, not elsewhere classified.	16,346	34.4	20,138	37.1	14,479	34.9	17,005	40.1	53,689	36.3	19,531	33.7	34,578	38.0
1608	Cigars.	17,342	29.6	11,703	30.1	16,591	29.6	10,202	30.5	58,225	38.5	30,481	39.2	37,714	37.8
626	Paints, pigments, and varnishes.	10,828	28.0	14,559	25.7	8,587	31.0	10,381	32.2	134,129	32.2	69,409	29.9	64,720	34.9
703	Gas, manufactured, illuminating and heating.	6,956	27.7	11,094	29.4	6,197	31.5	9,411	34.1	107,776	31.2	26,088	26.7	81,688	32.9
1127	Wirework, not elsewhere classified.	7,968	27.7	7,892	26.6	7,334	29.1	7,574	29.8	25,485	21.7	11,307	20.3	14,178	22.9
1304	Engines, turbines, water wheels, and windmills.	7,301	26.2	11,455	29.7	5,655	25.7	7,887	29.4	28,809	28.9	10,286	24.5	18,413	32.1
1122	Structural and ornamental metal work, made in plants not operated in connection with rolling mills.	8,622	24.8	9,656	22.6	7,414	27.2	7,319	26.0	39,000	24.3	25,141	27.2	13,859	20.3
410	Pulp (wood and other fiber).	6,216	24.2	6,775	24.0	5,794	24.5	5,877	25.1	37,875	22.7	21,893	22.8	15,982	22.5
1322	Foundries.	19,967	20.5	28,553	24.7	17,570	21.8	27,627	28.0	60,223	24.1	22,169	24.7	18,054	23.7
1318	Machine-tool accessories and machinists' precision tools.	5,547	20.3	5,026	20.2	5,036	21.8	7,838	22.8	20,196	20.9	7,538	28.0	12,658	18.1
613	Flour and other grain-mill products.	6,593	19.5	8,788	20.9	5,621	21.2	6,890	25.4	248,250	29.1	206,868	28.9	41,382	30.2
907	Leather: tanned, curried, and finished.	10,362	18.9	13,512	20.3	9,644	19.0	11,804	21.1	67,071	21.8	41,386	20.9	25,085	23.3
802	Rubber goods other than tires, inner tubes, and boots and shoes.	8,706	18.7	10,767	20.5	7,560	18.7	8,555	21.7	33,024	18.5	16,069	19.5	16,955	17.6
209	Rayon manufactures.	13,700	18.6	10,738	17.2	13,432	19.1	9,931	18.1	37,912	18.6	23,975	21.2	13,937	15.2
1017	Pottery including porcelain ware.	5,667	18.1	6,359	18.9	5,413	18.8	5,613	20.0	12,458	18.7	3,545	19.7	8,913	18.2

For footnotes, see end of table.

report to include all establishments within an industry which are under common ownership, regardless of the location of individual establishments.

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Largest eight producers																Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.		Value added by manufacture		Number of establishments		
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry	
21 LARGEST INDUSTRIES*																
142,527	87.5	220,960	88.6	130,365	88.7	197,469	90.8	2,252,640	94.8	1,719,112	94.8	533,528	92.5	47	38.5	1408
184,214	70.1	273,762	73.6	172,319	71.6	249,422	76.0	1,191,506	76.8	798,298	79.6	363,208	71.8	55	6.7	1107
228,600	58.7	308,231	60.1	212,668	59.1	299,844	61.4	1,231,382	63.8	744,344	67.9	487,038	59.3	95	24.0	1402
103,850	46.5	147,677	50.9	82,376	48.8	101,408	51.2	502,278	52.3	176,621	47.6	325,657	55.2	124	8.9	1103
65,616	47.3	109,898	61.0	51,430	44.1	84,063	61.6	1,500,135	63.5	1,312,604	64.7	187,431	56.4	113	9.2	1203
76,791	53.2	106,855	53.4	72,101	53.1	95,436	53.2	199,765	53.7	92,882	54.6	106,883	53.0	181	43.5	1502
50,349	28.6	49,853	27.9	47,778	28.7	44,620	28.9	235,745	32.9	150,452	34.9	83,260	29.9	65	9.3	2135
56,019	25.9	55,134	26.6	53,934	26.7	49,129	28.9	198,183	30.8	108,108	32.4	96,445	29.0	83	8.1	904
23,849	18.9	29,856	23.2	22,373	19.2	17,424	24.7	197,637	30.4	119,905	29.3	77,722	32.3	108	3.9	1055
52,427	21.9	67,399	23.4	48,263	22.1	59,115	23.7	316,718	25.6	154,539	23.0	162,179	28.1	348	1.8	102
40,021	17.1	84,084	20.2	22,354	18.8	43,225	22.4	303,971	25.5	73,072	31.2	230,869	24.7	59	.7	1010
22,166	19.3	26,157	18.6	19,826	19.2	21,478	19.5	153,715	21.6	90,983	21.2	62,732	22.2	63	10.6	407
22,554	17.5	14,204	16.4	21,770	17.9	12,933	17.5	55,728	16.8	30,288	16.6	25,554	17.1	80	6.6	203
58,735	14.8	40,000	14.5	57,557	15.7	37,688	15.2	144,572	14.0	90,805	14.5	53,767	13.0	58	.9	202
16,648	11.7	24,331	12.1	13,003	11.8	17,888	13.6	64,173	11.0	24,002	11.0	40,173	11.0	23	9.0	1305
15,812	9.4	17,048	9.8	14,638	9.5	14,646	10.1	45,576	7.4	21,247	7.3	24,329	7.5	26	8	2135
11,841	8.0	11,426	7.9	10,801	8.5	9,638	8.5	38,303	8.8	19,067	9.2	19,339	8.5	22	.7	309
20,216	8.7	20,219	9.4	19,183	8.7	18,807	10.0	51,687	8.5	21,369	7.2	30,318	9.7	26	1.4	234
10,863	6.5	16,477	6.8	8,357	6.6	11,688	6.9	45,175	6.5	11,163	5.7	34,012	6.7	53	.3	318
27,691	6.4	18,387	8.8	16,418	6.4	16,704	9.1	42,012	7.6	12,997	6.2	29,015	8.4	26	.4	311
9,871	3.4	5,627	2.1	9,564	3.7	5,853	2.4	28,216	2.2	14,522	2.3	13,694	2.1	21	.2	216
44 MEDIUM INDUSTRIES*																
25,795	99.2	21,786	98.8	24,285	99.3	18,182	99.3	801,602	99.4	637,296	99.4	163,306	99.4	14	48.3	1652
57,716	87.8	87,996	90.6	50,330	88.1	71,678	91.6	403,364	90.4	238,098	89.7	165,326	91.6	16	38.1	803
18,411	89.4	52,157	89.0	45,457	90.0	45,641	90.0	167,066	90.2	57,555	89.2	109,151	90.7	20	62.5	629
23,532	74.3	27,549	74.3	20,214	73.5	20,788	74.7	250,288	85.6	180,567	87.6	69,720	80.1	87	42.7	1129
51,915	85.0	68,780	87.5	45,125	85.4	57,258	89.0	255,564	87.7	123,357	88.5	132,267	87.1	33	13.7	1301
22,601	63.6	24,151	65.7	20,630	63.0	20,630	63.0	167,066	60.2	37,121	65.9	45,058	70.5	22	12.2	1302
32,620	63.0	44,997	64.0	28,352	63.2	35,382	63.8	160,158	64.1	40,688	67.3	59,470	63.0	26	4.7	1303
24,951	58.4	29,881	57.9	22,256	59.9	24,446	60.4	130,687	58.0	67,124	57.7	62,963	58.4	11	4.0	1310
16,497	51.4	19,488	50.4	14,417	53.2	15,617	54.2	54,991	49.2	17,751	47.4	37,240	50.1	26	9.5	1119
53,375	58.0	83,778	58.4	45,719	59.1	66,135	60.3	1,082,484	58.9	870,741	58.9	211,743	58.8	13	23.8	735
35,153	48.2	47,753	46.6	30,443	48.4	34,653	48.1	206,019	32.4	125,494	57.1	80,525	46.4	63	5.7	1012
35,875	48.9	45,304	52.8	32,570	38.5	38,069	53.3	179,266	61.0	70,572	64.2	102,694	59.0	49	23.0	1078
35,171	47.5	55,991	49.8	31,603	48.1	40,103	49.8	224,144	48.5	148,190	45.1	176,154	51.9	90	13.5	603
20,775	43.7	25,082	46.2	19,297	41.0	20,677	48.8	67,230	45.5	25,941	42.6	42,189	46.7	15	9.7	1109
23,244	39.7	15,558	40.1	22,480	39.8	13,600	40.8	76,600	50.7	40,964	53.6	35,696	46.7	35	4.7	1168
13,557	35.1	18,318	32.3	10,697	38.6	12,856	39.9	174,168	41.8	93,994	40.1	80,174	43.3	70	6.5	1026
11,621	46.3	18,507	49.0	9,967	50.6	14,987	53.9	195,962	56.1	51,847	53.0	142,115	57.3	109	21.2	723
10,418	36.2	12,359	36.6	9,305	37.3	10,052	39.5	41,481	35.3	19,251	34.6	22,230	35.9	25	4.7	1127
11,378	40.9	17,298	44.7	8,928	40.5	12,106	45.1	47,333	47.2	20,683	49.2	26,350	45.8	9	6.0	1104
10,483	30.1	12,203	28.6	8,913	32.7	9,106	32.3	50,622	31.5	32,551	35.2	18,071	26.5	28	2.5	1122
7,968	31.0	9,004	31.9	7,357	31.1	7,646	32.7	57,669	34.5	34,575	33.9	23,094	32.4	39	20.7	1120
26,117	86.8	35,239	89.5	25,330	86.0	33,122	86.6	81,311	82.9	30,284	83.7	52,027	82.4	48	8.8	1322
7,657	28.1	12,724	28.5	6,817	29.5	10,006	30.8	26,771	30.7	10,334	33.8	19,437	27.8	12	1.6	1318
8,758	25.8	11,745	28.1	7,189	27.1	8,642	31.9	315,798	30.7	265,403	37.1	10,395	36.8	93	4.2	1160
16,239	26.6	20,448	30.7	15,108	29.7	17,679	31.7	105,753	34.3	66,697	33.7	39,056	35.4	51	13.3	967
12,230	26.3	15,117	28.8	10,539	26.1	11,972	30.4	50,943	28.5	25,107	30.5	25,836	26.9	15	3.6	902
19,503	26.5	15,500	24.8	18,977	27.0	14,110	25.7	53,918	26.4	33,120	29.3	20,798	27.2	28	6.3	290
8,589	27.5	9,546	28.8	8,103	28.1	8,329	29.7	19,424	29.1	5,214	29.0	14,210	29.1	12	4.7	917
Motor vehicles, not including motorcycles.																1408
Motor-vehicle bodies and motor-vehicle parts.																1107
Steel-works and rolling-mill products.																1402
Electrical machinery, apparatus, and supplies.																1103
Meat packing, wholesale.																1203
Railroad repair shops, steam.																1502
Wool and hair manufactures.																2135
Boots and shoes, other than rubber.																904
Canned and dried fruits and vegetables, preserves, jellies, fruit butters, pickles, and sauces.																1055
Bread and other bakery products.																102
Printing and publishing, newspaper and periodical.																1010
Paper.																407
Men's cotton garments.																203
Cotton manufactures.																202
Machinery, not elsewhere classified.																1305
Men's, youths', and boys' clothing, not elsewhere classified.																2135
Furniture, including store and office fixtures.																309
Knit goods.																234
Printing and publishing, book, music, and job.																318
Lumber and timber products, not elsewhere classified.																311
Women's, misses', and children's apparel, n. e. c.																216
Cigarettes.																1652
Rubber tires and inner tubes.																803
Rayon and artificial products.																629
Tin cans and other tinware, not elsewhere classified.																1129
Agricultural implements.																1301
Ships and boats.																1302
Ship and boat building, steel and wooden, including repair work.																1310
Refrigerators and refrigerating and ice-making apparatus.																1401
Steam and hot-water heating apparatus and steam fittings.																1119
Petroleum refining.																735
Phonograph apparatus and phonographs.																1012
Nonferrous metal alloys, products, except aluminum, n. e. c.																1078
Glass.																1122
Flour mills, not elsewhere classified.																1104
Hardware, not elsewhere classified.																1109
Cigars.																1168
Paints, pigments, and varnishes.																626
Gas, manufacture, distributing and heat ing.																723
Wirework, not elsewhere classified.																1127
Engines, turbines, water wheels, and wind-mills.																1104
Structural and ornamental metal work, made in plants not operated in connection with rolling mills.																1122
Pulp (wood and other fiber).																39
Foundries.																1322
Machine-tool accessories and machinists' precision tools.																1318
Flour and other grain-mill products.																917
Leather, tanned, curried, and finished.																902
Rubber goods other than tires, inner tubes, and boots and shoes.																290
Rayon manufactures.																629
Pottery, including porcelain ware.																1107

TABLE I.—Concentration in manufacturing industries,

[Values in thous

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.		Value added by manufacturer		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
44 MEDIUM INDUSTRIES—Continued																	
611	Drugs and medicines.....	5,510	17.5	7,742	17.5	4,630	20.9	5,298	24.1	68,151	23.4	15,753	18.9	52,398	25.1	15	1.5
204	Dyeing and finishing cotton, rayon, and silk.....	12,653	15.9	12,457	14.7	11,454	16.1	9,912	15.0	30,275	13.5	14,174	13.9	16,101	13.2	10	1.9
408	Paper goods, not elsewhere classified.....	5,142	15.6	5,706	14.4	4,397	16.0	4,283	16.2	25,946	13.2	12,657	11.5	13,289	15.5	10	1.8
1004	Clay products (other than pottery) and nonclay refractories.....	7,256	14.8	5,661	12.9	6,989	15.6	5,120	14.8	21,412	19.2	8,537	22.4	12,875	17.6	51	4.8
1307	Machine tools.....	4,994	14.0	8,060	15.4	3,729	13.2	5,761	15.5	16,181	13.3	4,517	12.5	11,664	13.6	4	1.5
1121	Stoves and ranges (other than electric) and warm-air furnaces.....	6,676	13.9	8,177	14.4	6,175	14.8	7,170	16.2	24,339	13.1	10,074	13.2	14,265	13.0	9	1.6
119	Ice, manufactured.....	3,543	13.3	4,468	12.8	2,861	15.1	3,331	16.2	24,957	19.5	4,572	16.3	20,385	20.3	413	10.7
304	Boxes, wooden, except cigar boxes.....	2,904	11.2	2,283	11.9	2,591	11.2	1,832	12.2	8,359	13.9	4,500	14.0	8,859	12.4	38	5.7
112	Confectionery.....	5,721	9.9	5,350	10.3	5,296	10.2	4,274	10.9	31,960	12.3	17,019	11.1	14,941	14.1	6	.5
210	Silk manufactures.....	5,527	9.4	4,375	9.3	5,104	9.2	3,668	9.1	8,189	5.5	2,711	3.9	5,478	6.8	7	1.1
1129	Stamped and pressed metal products, enameling, japanning, and lacquering.....	5,266	9.3	6,527	9.7	4,622	9.3	5,027	9.8	25,090	12.0	13,104	13.0	11,566	11.8	8	1.1
1326	Machine shops.....	8,980	9.0	11,957	8.9	7,674	9.3	9,402	9.6	30,326	7.2	10,495	6.1	19,831	8.0	10	3
134	Liquors, malt.....	4,227	8.8	8,117	9.8	3,567	9.1	6,824	10.2	49,293	11.8	14,811	10.6	34,482	12.3	6	.2
402	Boxes, paper, not elsewhere classified.....	5,564	8.8	6,331	9.0	4,802	8.7	4,851	9.6	42,031	14.1	18,464	16.9	13,567	10.4	39	3.2
314	Planing-mill products (including general millwork), made in planing mills not connected with sawmills.....	2,911	5.1	2,736	4.8	2,584	5.4	2,255	5.3	9,104	4.6	4,823	4.4	4,281	4.9	16	.6
210 SMALL INDUSTRIES *																	
1314	Typewriters and parts.....	303	93.5	390	92.9	247	96.5	250	95.8	1,834	86.4	773	82.1	1,061	89.9	4	44.4
1010	Graphite, ground and refined.....	5,801	91.8	5,988	89.7	5,207	93.0	4,794	93.6	24,136	91.7	9,580	89.9	14,556	90.4	7	53.8
624	Oils, essential.....	242	87.7	246	89.5	215	90.3	177	91.7	622	88.1	281	89.2	341	87.2	4	36.4
1609	Combs and hairpins, other than metal and rubber.....	2,273	87.6	2,760	87.3	2,092	89.0	2,373	89.6	52,978	87.9	42,938	88.0	10,040	87.6	17	68.0
623	Oil, cake, and meal, linseed.....	5,854	84.9	7,791	83.3	5,479	85.5	6,931	85.5	42,752	81.6	18,941	79.1	23,811	83.7	9	56.3
222	Asphalted felt-base floor covering; linoleum.....	895	84.4	1,087	84.9	685	84.7	682	85.3	2,808	84.8	992	82.3	1,816	86.1	4	28.6
1115	Sales and vaults.....	433	83.5	889	83.0	322	85.4	320	84.2	2,808	83.0	1,135	80.2	1,673	85.1	4	18.2
619	Ink, writing.....	2,671	83.0	3,159	82.9	2,456	84.3	2,604	85.4	7,879	85.8	1,917	85.8	5,962	85.8	6	27.3
1105	Fibers.....	582	82.2	832	83.4	491	83.2	479	79.7	5,195	87.8	2,983	88.3	2,212	87.2	7	33.3
612	Grind grinding.....	1,241	82.1	1,614	81.0	975	82.9	1,105	84.8	25,615	79.1	18,127	77.8	7,488	82.2	6	42.8
124	Oleomargarine, not made in meat-packing establishments.....	7,135	82.0	9,334	80.6	6,288	83.7	7,596	83.9	17,857	78.9	4,800	79.6	12,057	72.5	5	12.8
1312	Sewing machines and attachments.....	4,256	80.6	6,024	80.7	3,753	82.1	4,776	84.6	33,571	82.0	13,892	81.7	19,459	82.2	37	50.0
613	Explosives.....	12,396	80.2	18,541	79.9	9,754	81.3	13,005	82.3	57,395	77.6	12,978	49.7	44,417	92.9	6	5.1
1636	Photographic apparatus and materials and projection apparatus.....	4,296	78.6	5,254	79.9	3,808	78.4	4,482	81.5	10,670	81.9	2,680	79.1	7,990	82.9	6	27.3
1106	Firearms.....	15,163	78.3	15,759	79.4	13,457	78.0	12,794	79.4	43,243	81.3	16,895	81.5	26,348	81.2	6	50.0
801	Boots and shoes, rubber.....	856	77.4	1,166	79.5	642	79.7	800	82.9	4,121	77.2	1,883	76.2	2,238	78.0	4	16.0
126	Fire extinguishers, chemical.....	1,569	77.0	1,965	78.4	1,413	77.3	1,544	79.7	12,000	81.0	4,088	76.7	7,912	83.5	41	74.5
606	Bone black, carbon black, and lamp black.....	4,379	76.9	5,892	72.2	2,982	78.7	3,373	76.5	33,244	79.1	9,016	80.2	24,228	78.7	239	72.4
610	Compressed and liquefied gases.....	16,911	76.6	19,418	75.7	14,819	76.9	15,732	77.4	79,036	76.0	44,946	79.6	39,090	74.7	16	9.4
1201	Aluminum products.....	2,555	75.8	2,601	74.0	2,338	77.1	2,141	77.1	10,729	76.7	5,531	78.8	5,198	74.6	7	20.6
307	Cork products.....	466	74.2	391	71.9	427	76.7	301	71.7	1,135	63.6	598	62.3	537	65.2	5	18.5
1205	Gold leaf and foil.....	6,256	72.6	8,922	75.1	5,290	72.1	6,289	74.5	80,058	77.2	53,710	76.4	26,348	79.0	16	44.4
113	Corn sirup, corn sugar, corn oil, and starch.....	1,827	70.8	2,342	75.1	1,722	74.4	1,990	82.3	43,450	91.0	13,034	87.0	30,416	92.8	5	19.2
108	Chewing gum.....	1,038	70.3	1,618	70.8	788	71.9	1,058	73.7	6,639	73.5	3,086	74.8	2,953	72.2	8	16.7
1641	Starch mountains and accessories.....	553	69.2	760	69.8	448	71.3	482	75.2	2,288	61.9	1,215	62.5	1,073	61.4	4	25.0
403	Cardboard, not made in paper mills.....	2,868	69.0	3,435	65.6	2,417	70.6	2,627	70.4	8,653	63.4	2,567	61.9	6,086	64.0	9	11.0
1116	Saws.....	1,628	68.9	2,108	68.7	1,399	69.4	1,654	71.0	4,066	58.2	1,286	46.6	2,740	65.8	4	13.8
1222	Watches.....	7,555	68.7	8,113	67.8	6,715	69.8	6,497	69.9	24,089	63.1	10,890	63.1	13,259	63.1	14	19.5
1001	Asbestos products other than steam packing, pipe, and boiler covering.....	2,650	68.0	2,987	66.2	2,307	69.7	2,425	70.4	19,804	75.3	6,278	70.4	14,526	77.8	33	45.5
1022	Gypsum products.....	3,919	66.5	4,459	65.5	3,207	66.2	3,129	66.5	146,797	69.0	123,574	69.4	73,223	66.8	24	50.0
120	Shortenings, vegetable cooking oils and salad oils.....	3,630	66.1	3,690	67.0	3,354	66.1	3,183	67.8	21,400	70.3	14,039	73.7	23,661	64.6	9	37.5
312	Matches.....	7,717	65.5	10,295	69.2	6,142	63.5	7,152	69.2	20,767	61.9	5,609	50.7	15,158	67.3	7	7.0
1631	Optical goods.....	7,717	65.5	10,295	69.2	6,142	63.5	7,152	69.2	20,767	61.9	5,609	50.7	15,158	67.3	7	7.0
1211	Needles, pins, hooks and eyes, and slide and snap fasteners.....	9,813	64.9	11,921	69.2	8,932	64.5	9,749	70.1	262,388	69.6	231,740	68.9	30,648	74.7	10	55.6
131	Sugar refining, cane.....	5,589	64.3	8,761	68.4	4,312	64.1	5,964	71.4	36,965	69.9	12,544	60.5	23,521	71.0	5	5.3
1021	Abrasive wheels, stones, paper, and cloth and related products.....	15,770	64.2	20,019	63.1	13,748	64.0	16,219	63.0	72,099	71.7	45,631	73.9	26,468	68.2	54	36.0
1405	Cars, electric and steam railroad.....	6,008	64.0	6,446	62.2	5,333	64.6	5,175	64.7	63,058	67.8	45,874	69.1	17,184	64.5	4	9.1
109	Chocolate and cocoa products, not including confectionery.....	5,862	63.7	7,537	65.4	5,221	66.2	6,085	71.4	98,213	67.0	51,848	62.9	46,365	72.2	8	7.3
106	Cereal preparations.....	2,133	63.6	4,285	67.7	1,690	63.4	2,954	69.1	18,438	57.1	7,867	54.6	10,591	59.0	11	23.9
603	Baking powder, yeast, and other leavening compounds.....	1,696	63.6	2,088	59.7	7,426	64.8	1,511	61.7	4,766	62.2	2,100	59.9	2,666	53.7	4	4.0
503	Engraving, chasing, etching, and die-sinking.....	10,795	63.3	13,800	61.6	9,042	65.0	10,468	68.2	175,870	73.5	102,529	73.5	73,341	73.5	18	7.6
631	Soap.....	6,730	62.3	8,225	65.6	6,078	61.5	6,161	66.0	64,737	68.0	48,761	68.5	15,766	66.5	46	59.7
129	Sugar, beet.....	2,812	61.6	2,819	59.7	2,311	61.1	2,062	61.0	12,595	70.4	3,690	63.8	8,505	73.6	4	7.7
1634	Pens, fountain and stylographic; pen points, gold, steel, and brass.....																

For footnotes, see end of table.

1935, based on number of persons employed—Continued

in units of dollars]

Largest eight producers														Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. 1		Value added by manufacturer 2			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
44 MEDIUM INDUSTRIES—Continued															
7,581	24.1	10,645	24.0	6,063	27.4	6,551	29.8	97,109	33.3	21,806	26.2	75,243	36.1	27	2.6
18,747	23.6	18,793	22.1	16,813	23.6	14,901	22.5	49,608	22.2	25,138	24.6	24,470	20.1	20	3.8
7,034	21.3	8,313	21.0	5,957	21.7	6,088	23.0	46,484	23.7	25,955	23.6	20,529	23.9	22	4.0
9,696	19.7	8,363	19.0	9,152	20.5	7,097	20.5	29,598	25.6	11,578	30.5	18,020	24.6	63	5.9
7,851	22.1	12,056	23.0	6,009	21.3	8,504	23.1	28,599	23.5	8,394	23.1	20,205	23.6	9	3.5
9,202	19.1	12,006	21.3	8,321	19.9	10,414	23.5	42,645	23.0	14,899	19.6	27,746	25.3	15	2.7
4,755	17.9	6,113	17.5	3,760	18.8	4,510	21.9	35,893	28.0	6,949	24.8	28,944	28.8	563	14.6
4,179	16.7	3,580	18.7	3,874	16.8	2,939	19.6	13,799	21.8	7,324	22.8	6,475	20.8	51	7.7
9,172	15.8	8,948	17.3	8,268	15.9	6,845	17.4	51,827	19.9	29,435	19.2	22,392	21.1	16	1.2
9,505	16.2	7,474	15.9	8,893	16.0	6,311	15.6	22,007	14.7	11,712	18.8	10,295	12.8	13	2.0
8,370	14.8	10,392	15.4	7,360	14.8	8,038	15.7	38,802	18.6	20,320	20.1	18,482	17.2	12	1.7
13,008	13.1	17,664	13.1	11,141	13.5	13,873	14.2	61,157	14.6	28,649	16.6	32,508	13.2	20	.6
6,037	12.6	11,776	13.2	5,187	13.2	9,057	14.9	74,187	17.7	22,703	16.2	51,484	18.4	11	1.7
8,398	13.3	9,651	13.8	7,390	13.4	7,592	15.0	61,913	20.7	41,455	24.6	20,458	15.7	52	4.3
4,225	7.4	4,195	7.3	3,703	7.7	3,416	8.1	15,952	8.1	9,503	8.7	6,449	7.4	29	1.1
210 SMALL INDUSTRIES															
16,834	99.5	18,686	99.4	15,333	99.6	16,579	99.7	33,609	99.3	8,563	99.2	25,046	99.3	14	70.0
324	100.0	420	100.0	256	100.0	261	100.0	2,122	100.0	942	100.0	1,180	100.0	9	100.0
218	99.2	429	95.1	158	95.2	211	96.3	3,472	98.0	2,575	99.0	807	95.4	8	66.7
6,520	100.0	6,676	100.0	5,599	100.0	5,121	100.0	26,307	100.0	10,200	100.0	16,107	100.0	13	100.0
265	96.0	208	97.5	229	96.2	189	97.9	685	97.0	310	98.4	375	95.9	8	72.8
2,495	96.2	3,017	95.4	2,277	96.9	2,562	96.7	57,273	95.0	46,324	94.9	10,949	95.6	21	84.0
278	97.1	284	88.8	246	88.5	197	87.9	1,132	89.3	586	90.9	516	87.8	8	42.1
6,895	100.0	9,350	100.0	6,410	100.0	8,105	100.0	52,398	100.0	23,942	100.0	28,456	100.0	16	100.0
1,031	97.2	1,246	97.3	789	97.5	782	97.8	3,229	97.5	1,172	97.3	2,057	97.5	8	57.2
483	93.2	667	94.0	355	94.2	337	93.9	3,167	93.6	1,320	93.3	1,847	93.8	8	36.4
3,439	94.4	3,612	94.8	2,759	94.7	2,912	95.5	8,713	94.9	2,112	94.6	6,601	95.0	10	45.5
1,619	93.4	940	94.2	556	94.2	565	94.0	5,719	96.7	3,275	96.9	2,444	96.3	12	57.1
1,618	93.8	1,875	94.1	1,111	94.5	1,238	95.0	31,110	96.0	22,298	95.7	8,812	96.0	10	71.4
8,088	93.0	10,410	93.4	7,006	93.3	8,457	93.4	20,471	90.4	5,396	89.5	14,075	84.7	9	23.1
1,790	90.7	6,797	91.4	4,178	91.4	4,251	93.0	37,845	93.1	15,807	90.0	22,038	93.1	43	58.1
13,256	85.8	20,086	86.7	10,370	86.4	13,921	88.1	62,821	84.9	15,325	85.6	47,496	99.3	15	12.7
5,044	92.3	6,041	91.8	4,498	92.6	5,105	92.9	12,037	92.4	3,163	93.4	8,874	92.1	10	45.5
19,377	100.0	19,837	100.0	17,246	100.0	16,113	100.0	53,162	100.0	20,730	100.0	32,432	100.0	12	100.0
951	85.9	1,302	88.8	716	88.8	878	91.0	4,660	87.2	2,098	84.9	2,562	89.3	8	32.0
1,847	90.6	2,203	90.7	1,664	91.1	1,777	91.7	13,615	91.9	4,879	91.5	8,736	92.2	46	83.6
4,771	83.8	6,559	80.4	3,232	85.3	3,701	84.0	36,178	86.1	9,695	86.0	26,513	86.1	292	79.1
18,830	83.0	21,139	82.4	16,115	83.6	17,713	84.1	87,060	83.1	49,215	84.2	37,845	82.9	20	11.8
2,976	88.3	3,070	87.4	2,711	89.4	2,485	89.5	12,612	90.2	6,442	91.8	6,170	88.6	11	32.4
556	88.5	483	88.8	492	88.3	353	87.6	1,559	87.4	830	86.5	729	88.5	9	33.3
8,002	92.9	11,151	93.7	6,807	92.8	7,934	94.0	98,469	95.0	66,608	94.8	31,961	95.5	20	25.6
2,184	84.4	2,750	88.2	2,001	86.6	2,222	91.9	46,499	97.4	14,364	95.9	32,135	98.0	9	34.6
1,161	78.6	1,829	78.6	867	79.1	1,146	79.8	6,603	80.4	3,341	81.0	3,262	79.8	12	20.5
6,689	86.2	972	89.3	539	85.8	565	88.1	3,296	89.2	1,765	90.7	1,531	87.9	9	56.2
3,136	76.7	3,561	75.6	2,673	78.0	2,923	78.3	10,413	76.3	3,145	75.9	7,208	76.5	15	18.3
2,030	85.9	2,631	85.7	1,734	86.0	2,022	86.8	5,635	80.7	2,103	76.2	3,532	83.6	8	27.6
8,859	89.6	9,430	78.8	7,920	82.3	7,585	81.6	29,921	78.4	13,642	79.6	16,259	77.9	19	26.4
3,101	79.6	3,536	78.3	2,748	81.3	2,833	82.2	22,723	86.4	7,623	85.5	15,100	96.9	42	58.3
4,900	83.1	5,626	82.7	3,997	82.5	3,880	82.4	182,643	85.9	153,630	86.3	29,013	83.4	31	64.6
4,797	87.3	4,755	86.6	4,478	88.2	4,152	88.5	27,789	91.3	17,696	92.7	10,143	89.0	15	62.5
8,499	71.9	11,195	75.3	6,808	70.4	7,790	74.4	23,739	70.7	6,818	61.6	16,921	75.1	13	13.0
8,189	72.5	8,978	72.0	7,311	72.4	6,955	73.3	25,018	76.3	6,582	70.9	18,436	78.3	9	38.0
12,830	84.1	15,004	87.3	11,609	83.9	12,158	87.4	333,122	88.3	295,772	88.0	37,350	94.0	14	77.8
6,160	70.9	9,433	73.7	4,514	71.0	6,454	77.3	39,291	72.9	13,910	67.1	25,381	76.6	9	9.6
18,928	77.1	24,317	76.6	16,687	77.7	20,509	77.9	84,473	81.0	53,792	82.1	30,681	79.0	72	48.0
7,243	77.2	7,763	74.9	6,458	77.9	6,156	77.0	72,144	77.5	52,026	78.3	20,118	75.5	8	18.2
6,851	74.4	8,706	75.5	6,085	77.1	6,963	81.7	120,562	82.2	65,654	79.9	55,508	86.4	15	13.6
2,760	82.3	5,303	85.4	2,202	82.6	3,679	86.0	25,650	79.3	10,833	75.2	14,817	82.6	15	32.6
2,021	75.8	2,534	72.4	1,703	77.4	1,798	73.4	5,773	75.4	2,371	87.9	3,402	68.5	8	8.0
12,368	72.5	16,173	72.2	10,394	74.7	12,038	78.5	198,504	83.1	114,921	82.4	83,883	84.1	24	10.1
9,181	85.0	10,906	87.0	7,844	85.0	8,201	87.8	85,181	89.4	64,082	90.1	20,599	87.4	62	80.5
3,432	79.5	3,767	79.0	3,114	79.7	2,763	80.6	14,777	82.6	4,167	72.1	10,610	87.7	8	15.6
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Drug grinding..... 613															
Oleomargarine, not made in meat-packing establishments..... 1317															
Fishing machines and attachments..... 1312															
Photographic apparatus and materials and projection apparatus..... 100															
Boots and shoes, rubber..... 80															
Fire extinguishers, chemical..... 1206															
Bone black, carbon black, and lamp black..... 696															
Compressed and liquefied gases..... 610															
Agricultural products..... 20															
Cork products..... 11															
Gum leaf and foil..... 1208															
Gypsum products..... 131															
Cheese, cream, sugar, corn oil, and starch..... 10															
Chesting gum..... 9															
Soda fountains and accessories..... 1641															
Cardboard, not made in paper mills..... 1114															
Saw..... 1222															
Watchcases..... 276															
Asbestos products other than steam packing, pipe, and boiler covering..... 102															
Gypsum products..... 131															
Shortenings, vegetable cooking oils and salad oils..... 361															
Matches..... 101															
Optical goods..... 1313															
Needles, pins, hooks and eyes, and slide and snap fasteners..... 1211															
Sugar refiners, cane..... 431															
Abrasives, wheels, stones, paper, and cloth, and related products..... 1021															
Cars, electric and steam railroad..... 1405															
Chocolate and cocoa products, not including confectionery..... 15															
Cereal preparations..... 106															
Baking powder, yeast, and other leavening compounds..... 1405															
Engraving, chasing, etching, and die-stamping..... 8															
Sugar, beet..... 631															
Pens, fountain and stylographic; pen..... 125															

Drugs and medicines.....	611
Dyeing and finishing cotton, rayon, and silk.....	204
Paper goods, not elsewhere classified.....	408
Clay products (other than pottery) and nonclay refractories.....	1004
Machine tools.....	1307
Stoves and ranges (other than electric) and warm-air furnaces.....	1121
Ice, manufactured.....	119
Boxes, wooden, except cigar boxes.....	304
Confectionery.....	112
Silk manufactures.....	210
Stamped and pressed metal products; enameling, japanning, and lacquering.....	1129
Machine shops.....	1326
Liquors, malt.....	134
Boxes, paper, not elsewhere classified.....	402
Planing-mill products (including general millwork), made in planing mills not connected with sawmills.....	314

Typewriters and parts.....	1314
Graphite, ground and refined.....	1010
Oils, essential.....	1624
Ammunition and related products.....	602
Combs and hairpins, other than metal and rubber.....	1609
Oil, coke, and meal, linseed.....	623
China firing and decorating, not done in potteries.....	1003
Asphalted-felt-base floor covering; linoleum.....	222
Safes and vaults.....	1115
Ink, writing.....	619
Files.....	1105
Drug grinders.....	612
Oleomargarine, not made in meat-packing establishments.....	124
Sewing machines and attachments.....	1312
Explosives.....	613
Photographic apparatus and materials and projection apparatus.....	1630
Firearms.....	1106
Boots and shoes, rubber.....	801
Fire extinguishers, chemical.....	1206
Bone black, carbon black, and lamp black.....	606
Compressed and liquefied gases.....	610
Aluminum products.....	1201
Cork products.....	307
Gold leaf and foil.....	1208
Corn sirup, corn sugar, corn oil, and starch.....	113
Chewing gum.....	108
Soda fountains and accessories.....	1641
Cardboard, not made in paper mills.....	403
Saws.....	1116
Watchcases.....	1222
Asbestos products other than steam-jacketing, pipe, and boiler covering.....	1001
Gypsum products.....	1022
Shortenings, vegetable cooking oils and salad oils.....	120
Matches.....	312
Optical goods.....	1631
Nipples, pins, hooks and eyes, and shoe and snap fasteners.....	1211
Sugar refining, cane.....	131
Grain, beet, stone, paper, and cloth, and related products.....	1021
Cars, electric and steam railroad.....	1405
Chocolate and cocoa products, not including confectionery.....	109
Cereal preparations.....	106
Baking powder, yeast, and other leavening compounds.....	503
Engraving, chasing, etching, and die-stamping.....	603
Soap.....	631
Sugar, beet.....	80
Pens, fountain and stylographic; pen points, gold, steel, and brass.....	1634

TABLE I.—Concentration in manufacturing industries,

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. <sup>1</sup>		Value added by manufacture <sup>2</sup>		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
210 SMALL INDUSTRIES—Continued																	
1637	Pipes (tobacco)	1,475	60.6	1,701	62.3	1,372	61.2	1,480	64.9	3,812	61.7	1,122	57.8	2,690	63.5	5	17.2
605	Bluing	58	59.2	125	75.1	34	58.6	41	74.9	776	85.1	224	78.3	552	82.2	6	40.0
1409	Motorcycles, bicycles, and parts	3,402	58.9	4,044	61.6	2,957	58.1	3,248	62.3	13,640	59.0	7,293	56.9	6,347	61.8	6	26.1
607	Candles	520	57.8	616	57.2	419	58.8	533	59.8	2,877	60.0	1,432	59.7	1,445	61.9	4	17.4
615	Fireworks and allied products	1,075	57.8	1,150	55.8	944	59.4	765	58.4	3,333	51.2	1,415	53.8	1,920	49.6	10	19.3
1110	Blast-furnace products	9,623	57.6	13,226	58.2	8,703	57.4	10,811	57.2	235,579	62.9	191,943	63.9	43,636	58.9	30	41.7
1218	Smelting and refining, zinc	5,464	56.5	7,441	59.6	4,937	55.8	5,986	58.0	40,417	60.2	26,082	59.9	15,335	60.7	9	34.6
220	Artificial leather, oil cloth	2,431	56.4	3,069	55.4	2,039	56.4	2,415	57.5	19,814	57.7	13,266	57.0	6,605	59.3	7	21.2
1629	Musical instruments: Organs	422	55.7	465	54.7	339	58.5	339	55.5	911	53.7	310	53.8	601	53.5	4	14.3
251	Felt goods, except women felts	2,212	55.7	2,413	54.7	2,052	57.4	2,015	58.6	14,530	61.3	8,090	59.9	6,440	63.1	9	22.5
1621	Dentists' equipment and supplies	2,493	55.6	3,087	52.6	2,104	59.8	2,222	61.2	11,542	50.3	3,097	34.0	8,445	61.0	7	8.0
1010	Wallboard and plaster, building insulation, floor composition	12,972	55.2	2,684	48.4	2,666	57.7	2,103	53.4	12,878	54.0	3,940	43.9	8,938	60.1	5	4.0
1315	Washing machines, wringers, driers, and ironing machines	5,492	53.5	7,381	58.5	4,639	53.0	5,926	60.2	34,879	55.9	20,147	54.4	14,732	57.9	6	14.6
1630	Musical instruments: Pianos, pianos, and ironing machines	2,485	53.0	2,611	53.2	2,185	53.4	2,170	53.0	6,477	51.1	2,342	46.0	4,235	59.7	4	11.1
308	Excelsior	474	52.2	401	59.4	438	62.7	313	57.8	1,591	65.1	612	59.4	979	69.3	9	18.8
1647	Tobacco (chewing and smoking) and snuff	5,739	51.9	4,834	46.3	5,378	53.4	4,091	53.6	75,396	55.7	54,760	60.9	20,636	43.3	8	7.0
1644	Steam and other packing, pipe and boiler covering, gaskets, n. e. c.	2,965	51.5	3,310	46.9	2,576	53.9	2,492	52.6	11,367	46.9	5,807	49.4	5,560	44.5	9	7.3
1113	Nails, spikes, etc.	1,290	51.5	1,530	50.2	1,160	53.2	1,293	54.4	4,669	49.3	2,015	46.6	2,654	49.8	6	14.0
1645	Surgical and orthopedic appliances and related products	4,727	50.6	5,319	49.4	3,700	52.2	3,163	50.3	41,293	66.9	28,020	77.6	13,273	51.7	10	3.3
1213	Silverware and plated ware	5,980	50.4	6,879	48.3	5,162	50.6	5,633	50.8	24,324	56.6	7,296	47.9	17,228	61.2	9	6.5
133	Liquors, distilled	4,814	50.0	5,027	44.4	4,395	53.9	4,387	52.5	77,957	51.0	38,533	50.4	39,404	51.6	15	11.4
203	Collapsible tubes	1,068	49.9	1,191	51.6	1,002	51.0	972	55.5	4,147	48.8	2,986	50.3	1,651	46.6	4	25.0
310	Lasts and related products	870	49.8	1,219	47.5	766	51.2	996	52.1	2,787	50.5	724	49.7	2,063	50.8	13	27.1
1403	Carriages and sleds, children's	2,680	49.1	2,797	51.7	2,491	50.6	2,471	56.6	7,302	47.0	4,743	46.8	3,829	47.3	6	10.9
1209	Gold, silver, and platinum, refining and alloying	744	49.1	1,195	45.1	545	54.4	663	50.3	50,168	64.3	47,746	66.5	2,422	38.6	5	3.7
1654	Wool pulling	461	48.5	555	45.0	419	48.4	461	47.3	5,481	44.2	4,207	46.7	1,274	37.5	4	23.5
1627	Musical-instrument parts and materials: Piano and organ	667	48.4	627	43.0	616	50.6	480	46.6	1,254	39.4	495	40.0	759	38.7	4	11.8
1311	Scales and balances	1,576	48.2	2,033	48.5	1,179	47.8	1,254	47.6	6,919	51.7	1,854	49.0	5,065	52.7	5	8.9
1401	Aircraft and parts	7,131	47.8	11,280	52.5	5,436	47.8	8,211	55.2	24,435	49.9	7,681	54.8	16,754	53.5	8	10.1
633	Wood distillation and charcoal manufacture	2,050	47.5	1,991	52.1	1,776	46.6	1,443	51.3	8,555	53.5	3,663	46.2	4,992	60.0	7	11.6
404	Cut carding and designing	1,655	47.3	1,981	49.3	1,447	49.0	1,534	53.9	11,061	64.2	5,233	68.0	5,828	61.2	5	6.6
630	Salt	2,619	47.2	3,255	50.9	2,352	47.3	2,588	53.0	17,920	60.3	4,143	58.7	11,307	61.2	15	31.3
1203	Penicils, lead (including mechanical), and crayons	2,857	46.9	3,098	49.0	2,451	47.3	2,187	51.6	8,973	44.9	3,740	45.3	5,233	44.6	5	10.6
1632	Clocks, watches, time-recording devices, materials, parts	9,412	46.4	10,006	44.3	8,712	48.3	8,536	46.7	20,548	33.6	6,101	27.1	14,447	37.4	5	6.6
1638	Roofing, built-up and roll; asphalt shingles; roof coverings	3,414	46.4	3,878	44.6	3,051	47.1	3,053	45.7	32,581	42.8	18,310	42.6	14,271	43.0	20	18.5
1018	Sand-lime brick	124	46.1	145	54.1	110	48.5	113	56.8	413	63.1	185	68.5	228	59.2	4	20.0
2171	Gloves and mittens, cloth or cloth and leather combined	3,868	46.0	2,135	41.5	3,781	47.0	2,011	44.8	8,323	43.9	4,631	45.0	3,692	42.7	22	19.2
411	Wall paper	2,242	45.9	2,479	41.4	2,012	47.2	2,023	45.1	8,068	41.0	4,150	42.0	3,918	40.1	8	20.0
1217	Smelting and refining, nonferrous metals other than silver, gold, and platinum	2,075	45.8	2,427	40.1	1,747	48.4	1,674	73.1	25,979	41.5	20,968	41.5	5,111	48.1	16	16.1
1603	Artists' materials	1,294	45.3	309	43.4	150	42.9	139	41.3	1,234	50.8	738	60.4	496	41.0	4	8.5
2173	Suspenders, zippers, and other elastic woven products	1,324	45.0	1,372	48.5	1,209	44.5	888	45.4	8,034	34.8	4,308	51.4	3,666	59.5	4	5.4
1120	Steel barrels, kegs, and drums	2,808	44.7	3,218	42.2	2,646	45.9	2,667	45.7	12,829	37.0	7,455	35.4	5,374	39.5	7	10.9
1632	Paving materials: Blocks and mixtures	1,181	44.4	1,642	46.0	1,136	50.9	1,363	59.8	7,962	44.5	4,469	47.0	3,273	41.4	26	19.7
111	Condensed and evaporated milk	4,358	44.1	4,485	41.1	3,859	45.6	3,618	43.5	73,218	42.7	53,956	41.2	19,262	47.5	168	36.0
122	Malt	730	43.7	1,505	42.0	644	44.8	1,040	44.3	33,536	44.6	25,255	44.8	8,281	44.3	13	24.1
1617	Hair work	270	43.7	361	46.6	228	45.5	178	40.7	1,260	43.8	303	29.1	897	52.9	4	9.3
1404	Carriages, wagons, sleighs, and sleds	718	42.9	788	44.6	688	43.2	576	44.8	3,052	44.6	1,603	43.6	1,449	45.0	4	8.9
1616	Galvanizing and other coating	568	42.6	760	40.4	549	45.7	480	37.8	1,791	34.5	471	23.5	1,320	41.4	4	6.2
1126	Wrought pipe, welded and heavy riveted	5,021	42.6	6,301	42.8	4,671	43.6	5,377	43.6	34,710	47.0	20,182	42.0	14,558	45.7	8	16.7
1616	Furs, dressed and dyed	2,967	42.6	4,022	41.9	2,890	44.9	3,355	44.4	6,486	30.4	1,762	27.1	4,724	31.9	7	4.2
1622	Jewelry and instrument cases	1,088	42.5	1,105	32.1	1,998	43.1	842	42.5	2,214	34.8	603	29.5	1,701	37.9	11	15.5
618	Ink, printing	1,405	42.0	2,318	37.9	1,057	44.6	1,429	44.2	16,500	47.8	10,131	54.5	6,369	39.9	41	21.5
1233	Lapidary work	85	41.9	132	44.8	72	40.0	90	47.7	507	24.7	291	23.5	216	26.6	4	6.7
616	Glue and gelatin	1,633	41.8	2,038	39.3	1,446	44.4	1,570	44.4	10,177	36.2	4,845	32.1	5,332	40.7	12	16.2
1612	Coke-oven products	2,442	41.7	10,451	40.6	6,870	41.2	8,543	39.6	116,463	48.2	90,368	50.4	25,555	43.9	20	22.7
136	Liquors, rectified or blended	2,974	41.6	2,324	34.5	2,890	48.6	2,135	47.2	41,873	42.2	20,532	36.2	21,341	50.3	6	2.3
127	Rice cleaning and polishing	1,061	40.7	980	36.8	825	40.7	408	35.7	16,131	36.6	6,161	34.7	4,244	42.9	17	25.0
1218	Spring, steel, except wire	1,460	40.6	1,969	42.7	1,357	43.1	1,674	36.9	9,774	53.6	6,640	60.1	4,734	43.6	4	1.2
1622	Jewelry, findings and materials	1,169	39.7	1,312	38.9	1,312	40.9	842	42.5	2,214	34.8	603	29.5	1,701	37.9	11	15.5
1628	Musical instruments and parts and materials, n. e. c.	1,394	39.6	1,739	41.2	1,080	37.7	1,197	39.8	3,514	38.8	844	30.9	2,670	42.2	4	4.3
132	Vinegar and cider	590	39.5	696	40.3	435	42.0	432	33.1	3,440	40.4	2,054	43.2	1,366	36.9	26	20.8
1639	Beauty-shop equipment, except furniture	1,039	39.0	1,146	35.5	875	40.2	717	36.4	3,371	28.5	1,592	31.1	2,009	26.8	4	4.9
319	Wood preserving	3,816	38.8	2,969	35.0	3,633	40.4	2,562	38.6	40,599	50.5	32,184	52.9	8,415	40.8	55	29.7
1614	Foundry supplies	222	38.4	409	44.5	150	37.5	187	41.9	1,850	28.4	836	24.3	1,014	33.0	7	15.2
1614	Umbrellas, parasols, and canes	922	37.9	812	37.1	860	39.3	655	38.8	2,959	29.3	1,455	23.4	1,524	38.6	4	1.8
1224	Jewelry's findings and materials	1,169	37.7	1,312	38.9	1,312	40.9	842	42.5	2,214	34.8	603	29.5	1,701	37.9	11	15.

sands of dollars!

Largest eight producers																Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc., <sup>1</sup>		Value added by manufacture		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 Small Industries—Continued																	
1,907	78.4	2,217	82.0	1,791	78.6	1,894	82.0	5,004	100.0	1,571	77.3	3,503	100.0	9	31.0	1657	
4,968	100.0	10,107	100.0	8,288	100.0	55	100.0	912	100.0	1,286	100.0	6,266	100.0	15	100.0	1658	
4,693	81.3	5,414	82.5	4,126	81.0	4,366	83.7	19,495	84.4	10,969	85.6	8,526	83.0	10	43.5	1495	
6,697	124.4	573	81.1	573	77.7	485	81.0	3,945	82.4	1,936	80.7	1,599	83.9	20	34.8	1496	
1,101	78.3	1,756	82.1	1,205	77.7	1,407	82.1	4,872	82.4	2,407	79.4	2,463	83.9	20	38.5	1497	
12,071	72.3	16,956	74.6	11,012	72.6	14,166	74.9	310,230	82.8	250,691	83.4	59,539	80.4	40	55.5	1110	
7,653	79.1	10,193	81.6	6,982	79.0	8,386	81.3	56,821	82.2	36,114	82.9	20,707	81.0	15	57.7	1111	
3,186	73.9	4,083	72.9	2,737	75.0	3,218	76.6	25,472	75.4	17,819	76.9	8,653	72.3	11	53.3	1112	
563	78.3	721	79.6	480	77.6	580	77.5	448	77.5	348	77.5	288	77.5	8	28.6	1113	
3,071	77.3	3,372	76.5	2,813	75.7	2,728	73.9	19,193	81.1	10,759	79.7	8,434	82.7	14	35.0	1114	
3,084	78.7	3,881	86.1	2,573	73.9	2,679	73.9	13,885	60.5	3,734	41.6	10,151	73.3	12	13.8	1021	
3,832	71.1	3,787	68.3	3,427	74.2	2,958	73.1	16,716	70.1	3,542	60.6	11,274	75.3	9	7.3	1022	
7,922	77.1	10,163	80.6	6,795	77.7	8,127	82.5	49,726	79.7	29,567	71.9	20,159	79.3	11	26.8	1659	
3,764	72.0	2,464	74.2	3,069	73.2	3,076	75.8	9,617	75.8	3,988	71.2	5,629	79.4	8	22.2	1660	
6,662	62.1	480	71.1	515	62.0	374	70.3	1,967	76.4	741	71.9	1,126	79.3	13	27.1	1661	
8,167	78.0	7,665	73.4	7,412	73.6	5,929	77.7	114,197	84.3	76,276	84.8	37,921	83.3	16	13.9	2047	
3,782	65.7	4,221	59.8	3,309	69.3	3,219	67.9	15,159	62.5	7,886	67.1	7,753	58.2	14	11.3	2048	
1,631	65.1	2,023	66.3	1,445	66.3	1,596	68.8	6,125	63.4	2,604	60.2	3,321	66.1	10	23.3	1115	
5,456	58.4	6,233	57.9	4,307	59.3	5,638	57.9	46,388	75.1	30,044	83.2	16,344	63.7	15	4.9	1116	
7,411	62.5	8,610	60.9	5,392	62.7	6,805	61.4	29,484	68.0	9,326	61.2	20,158	71.6	13	9.4	1215	
6,250	64.9	6,832	60.3	5,574	68.4	5,759	68.9	109,203	71.4	53,329	69.7	55,744	73.1	19	14.9	1216	
1,085	78.8	1,432	79.8	1,556	79.3	1,427	81.5	6,749	79.4	3,973	80.0	2,776	78.8	8	50.0	1217	
1,107	84.0	1,140	84.7	956	83.0	1,159	80.2	5,714	67.5	3,957	73.2	2,792	68.6	17	35.4	1218	
3,428	62.8	3,581	66.2	3,179	64.6	3,041	69.7	9,979	64.3	4,742	63.9	5,237	64.7	10	18.2	1219	
801	58.8	1,047	55.4	619	61.8	768	58.3	61,955	79.4	38,414	51.4	3,541	36.5	9	10.2	1240	
721	75.8	530	73.4	662	76.4	777	79.7	9,759	78.7	7,452	82.7	2,307	68.0	8	47.6	1662	
1,005	73.0	1,007	69.1	925	76.0	747	72.6	2,157	67.7	811	66.3	1,346	68.6	8	23.0	1663	
2,149	65.7	2,530	67.5	1,391	64.5	1,730	65.3	9,751	72.9	4,626	69.4	4,725	74.2	9	16.1	1311	
9,851	68.8	15,302	67.5	7,418	65.1	10,884	73.8	33,048	8.8	10,127	72.3	22,881	72.0	13	16.4	1312	
2,783	64.5	2,474	63.8	2,465	64.7	1,961	66.1	10,592	66.3	4,705	59.4	5,887	73.2	11	18.3	1313	
2,167	61.9	2,609	64.9	1,829	62.0	1,919	67.4	13,377	77.7	6,168	50.1	7,399	75.7	10	13.2	1314	
3,719	67.0	4,268	65.7	3,348	67.3	3,265	67.5	23,254	78.2	8,309	76.0	14,945	79.5	20	41.7	1315	
4,201	68.9	4,543	71.8	3,551	68.5	3,062	72.3	13,338	66.7	5,327	64.5	8,911	68.9	9	19.1	1316	
13,519	68.1	14,794	65.5	12,464	69.1	12,291	67.2	36,141	59.1	13,679	60.7	22,462	58.1	12	15.5	1317	
4,963	67.8	5,787	66.6	4,544	70.1	4,768	71.3	51,929	65.2	29,992	69.8	21,937	66.1	29	26.8	1318	
188	69.9	198	73.9	164	72.2	148	74.4	518	79.2	222	82.2	296	76.9	8	40.0	1031	
4,572	57.9	2,715	52.8	4,747	59.0	2,494	55.6	10,198	53.8	5,636	54.5	4,559	52.7	27	23.5	1032	
3,043	62.3	3,467	58.5	2,690	63.1	2,784	61.4	11,374	58.9	5,966	60.5	5,588	57.2	12	30.0	1033	
2,540	56.1	3,127	51.7	2,118	58.7	2,054	90.5	38,081	60.8	31,655	60.9	6,430	60.5	20	20.2	1034	
296	56.3	446	62.6	189	54.0	191	56.7	1,634	67.2	876	71.7	758	62.7	5	17.0	1664	
1,968	60.3	1,792	63.3	1,629	59.9	1,163	59.5	9,637	65.7	5,316	61.6	4,821	70.1	8	10.8	1665	
4,107	63.4	4,658	61.5	3,686	64.0	3,714	63.6	19,724	56.9	11,636	55.3	8,088	59.4	18	28.1	1121	
1,622	61.0	2,116	59.3	1,496	61.7	1,811	72.2	10,775	60.0	6,161	61.7	4,614	58.4	45	34.1	1122	
5,145	62.8	1,740	52.2	2,222	61.7	4,135	62.7	38,469	58.2	22,423	59.3	29,818	59.3	21	23.4	1123	
1,042	60.7	2,188	61.1	1,725	61.0	1,412	60.1	49,238	65.5	37,713	66.9	11,495	61.5	18	33.3	1124	
1,374	66.5	477	61.5	310	61.8	246	56.2	1,745	63.7	618	59.4	1,127	66.4	8	16.6	1125	
1,121	60.3	1,116	63.2	960	60.3	808	62.9	4,621	67.5	2,485	67.5	2,136	67.6	8	17.5	1126	
1,840	68.8	1,926	64.4	1,688	64.1	1,689	62.9	1,178	58.2	1,178	58.2	742	62.1	10	14.0	1127	
6,808	57.7	5,995	61.1	6,252	58.1	7,459	63.2	47,853	64.8	26,560	64.0	20,965	63.9	13	27.1	1128	
3,746	57.3	5,066	52.8	3,616	56.2	4,094	54.2	8,296	58.6	2,204	33.9	6,102	40.7	11	6.6	1129	
1,451	58.8	1,563	58.9	1,349	58.3	1,164	58.8	3,333	53.5	1,267	33.9	2,265	36.5	11	11.1	1130	
1,847	55.2	2,135	51.3	1,390	58.2	1,806	58.6	21,634	60.9	12,356	60.5	8,975	24.4	49	61.1	1131	
112	55.2	169	57.3	90	58.5	116	57.7	620	30.2	344	25.9	8	276	3.0	5	13.3	1132
2,887	61.1	3,664	59.0	2,103	64.6	2,332	66.0	16,307	58.2	8,127	57.8	2,710	63.2	19	25.7	1133	
11,260	60.8	15,644	60.8	10,004	60.2	12,973	60.1	162,543	68.1	124,548	69.0	37,993	65.3	34	38.6	1134	
3,591	50.2	2,983	44.3	3,386	57.6	2,613	57.1	55,943	56.4	29,243	51.6	26,702	62.2	19	13.0	1135	
1,325	50.8	1,330	49.9	1,038	51.2	678	51.7	23,278	52.8	17,719	51.8	5,559	56.9	21	30.9	1136	
2,527	62.2	2,834	61.5	2,045	65.0	2,375	66.6	12,967	71.1	8,537	77.3	4,430	61.6	8	16.4	1137	
1,810	58.6	2,135	51.3	1,390	58.2	1,806	58.6	21,634	60.9	12,356	60.5	8,975	24.4	49	61.1	1138	
1,870	51.4	2,438	57.2	1,424	49.7	1,695	56.3	4,945	54.6	1,312	45.1	3,633	57.4	8	8.6	1139	
361	52.2	853	56.7	568	24.8	580	58.8	4,838	36.8	2,830	59.5	2,068	53.4	33	26.4	1140	
1,464	55.1	1,528	51.8	1,240	52.7	1,029	53.5	2,897	55.5	2,097	53.2	4,280	56.8	8	9.8	1141	
4,629	47.1	3,785	45.6	4,374	48.7	3,279	49.4	48,373	60.2	38,376	62.2	9,997	48.5	65	35.1	1142	
3,543	59.7	2,691	49.9	2,538	64.5	3,009	69.3	4,466	68.5	2,380	69.4	2,076	67.5	11	23.9	1143	
1,101	50.9	1,157	51.0	1,144	52.3	883	51.6	4,429	43.9	2,358	38.8	2,068	72.4	8	15.0	1144	
1,701	54.9	1,394	51.3	1,394	56.1	1,465	57.3	4,203	45.2	3,221	47.2	4,203	45.2	15	13.0	1145	
11,380	50.2	14,515	48.8	9,611	50.0	10,835	51.0	31,597	45.9	10,330	44.7	21,267	46.5	14	4.0	1146	
1,141	50.4	1,432	48.7	972	54.9	1,044	57.6	24,184	57.6	16,671	57.6	7,413	58.0	15	14.2	1147	
1,114	50.6	1,740	52.8	1,344	54.8	1,458	57.8	8,048	48.8	4,405	38.4	3,484	47.3	10	10.8	1148	
11,914	49.2	15,927	30.5	10,983	51.0	13,201	34.0	68,549	54.0	37,178	45.3	33,381	20.0	22	22.7	1149	
Pipes (tobacco)																1657	
Bluing																1658	
Motorcycles, bicycles, and parts...																1495	
Handles																1496	
Fireworks																1497	
Blast-furnace products																1110	
Smelting and refining, zinc																1111	
Artificial leather, oil cloth																1112	
Musical instruments, organs																1113	
Felt goods, except woven felts						</											

TABLE I.—Concentration in manufacturing industries,

[Values in thou

Industry number	Industry	Largest four producers												Value added by manufacturer <sup>2</sup>	Number of establishments		
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. <sup>1</sup>					
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry			Amount	Percent of industry
210 SMALL INDUSTRIES—Continued																	
1102	Cast-iron pipe and fittings	5,191	35.6	3,975	31.3	4,939	36.5	3,443	33.2	14,258	37.6	5,602	37.9	8,656	37.5	14	19.7
405	Envelopes	3,757	35.2	4,422	33.2	3,230	35.7	3,196	35.3	14,663	33.6	7,847	37.4	6,816	29.8	17	10.3
1642	Sporting and athletic goods, not including firearms or ammunition	3,954	34.8	4,111	35.8	3,359	34.7	3,541	37.0	12,267	35.2	6,205	37.4	6,062	33.2	10	5.6
2172	Handkerchiefs	1,799	34.1	1,333	32.5	1,721	35.2	1,154	35.8	5,338	29.0	3,070	32.3	2,268	25.4	5	5.1
1324	Cranes, and dredging, excavating, and road-building machinery	4,868	34.0	6,800	35.0	3,784	35.0	4,029	36.9	17,882	28.5	7,532	26.2	10,550	30.4	8	6.3
126	Poultry dressing and packing, wholesale	3,213	33.9	2,157	30.2	2,765	34.2	1,543	30.5	27,367	29.4	23,066	30.1	4,300	26.4	166	29.9
1101	Bolts, nuts, washers, and rivets	4,889	33.6	6,149	34.1	4,302	34.4	4,800	36.3	16,754	29.2	5,488	29.3	8,266	29.2	13	9.9
622	Oil, cake, and meal, cottonseed	5,247	33.5	3,245	30.6	4,574	34.6	2,004	33.3	62,832	34.4	53,808	33.4	7,044	25.8	105	22.9
907	Belt and packing, leather	1,004	33.1	1,083	27.0	874	37.0	806	32.0	7,900	36.7	4,118	35.6	3,782	37.9	5	2.7
208	Lace goods	2,904	33.0	3,729	34.5	2,582	32.9	3,023	34.8	9,988	36.3	3,151	32.6	6,837	38.3	5	8.9
401	Bags, paper, exclusive of those made in paper mills	3,274	32.6	2,982	28.4	3,000	33.9	2,556	31.8	21,066	33.3	13,692	32.9	8,114	34.1	14	13.1
1114	Plumbers' supplies	7,297	31.8	8,941	31.2	6,652	33.1	7,365	34.5	25,939	34.3	10,095	31.7	15,444	36.2	10	4.0
1302	Cash registers, adding and calculating machines, business machines	7,361	31.6	9,947	29.5	5,666	30.7	7,079	29.9	18,598	19.6	5,086	36.9	13,512	16.7	7	7.5
614	Fertilizers	6,482	31.3	5,273	31.0	5,734	32.9	3,882	35.4	36,356	25.9	24,018	25.7	12,338	26.2	105	15.7
617	Grease and tallow, not including lubricating greases	1,772	31.0	2,249	29.2	1,416	29.7	1,582	29.4	14,124	28.7	5,827	29.2	5,597	31.7	18	7.0
1104	Doors, shutters, and window sash and frames, molding, etc.	1,855	30.9	2,359	30.4	1,374	30.3	1,490	29.3	6,708	29.5	2,972	29.8	5,736	29.2	7	5.3
602	Cement	7,161	30.7	7,361	26.8	6,508	31.5	5,868	28.1	35,179	29.2	12,107	28.2	23,072	29.8	37	24.2
1032	Tanning materials, natural dyestuffs, mordants, etc.	1,091	30.6	1,309	23.2	883	33.3	786	29.8	10,482	31.2	6,355	32.2	4,127	29.6	21	13.7
1651	Window shades (textile and paper) and fixtures	1,125	30.5	1,199	28.5	993	33.1	854	31.5	4,884	24.0	2,603	21.3	2,281	28.1	5	1.6
621	Mucilage, paste, or other adhesives, excluding glue and rubber cement	143	30.1	236	31.9	79	29.6	81	28.0	1,084	29.8	533	32.4	551	27.7	4	6.1
1325	Printers' machinery and equipment	3,878	30.0	6,016	29.4	3,013	30.5	4,347	32.0	15,362	29.8	2,807	21.5	12,555	32.6	5	2.1
318	Cordage and twine, pure goods, linen goods	5,989	29.3	4,539	24.8	5,452	29.3	3,556	25.5	20,727	30.1	10,388	30.0	10,339	30.1	16	10.8
1102	Window and door screens and weatherstripping	675	29.0	703	29.3	608	32.4	467	28.8	1,960	22.6	889	21.7	1,071	23.5	5	4.5
1016	Mirrors and other glass products	3,530	29.0	4,468	32.0	3,332	31.2	4,005	36.8	37,745	54.9	14,953	51.3	22,792	57.6	5	0.9
604	Blacking, stains, and dressings	627	28.8	838	25.7	505	33.7	458	31.2	6,830	38.1	3,475	40.2	3,455	36.2	5	3.0
1620	Instruments and apparatus, professional, scientific, commercial and industrial	5,753	28.7	7,488	28.1	4,465	29.4	5,175	25.8	18,783	27.5	5,410	26.3	13,373	28.0	10	3.6
206	Hats, felt and straw, except millinery	7,161	28.7	8,717	30.3	6,668	28.0	7,613	31.5	22,050	23.7	8,992	18.5	13,058	29.4	5	1.7
1501	Railroad repair shops, electric	5,931	28.2	9,946	33.0	5,148	27.7	8,771	32.5	15,636	32.3	5,546	31.9	10,060	32.6	16	6.2
128	Sausage, meat puddings, headcheese, etc.	2,963	27.4	3,103	22.5	2,707	24.5	2,588	25.7	45,707	35.1	39,330	38.0	6,377	23.9	151	16.2
909	Engraving, steel, copperplate and wood, and plate printing	1,766	26.6	2,922	31.8	1,539	29.0	2,325	35.7	6,444	32.0	1,104	24.0	5,340	34.4	6	1.6
118	Ice cream	6,490	26.6	9,005	28.4	4,636	27.1	5,624	24.4	68,587	32.7	39,319	30.0	38,298	35.3	165	6.7
1613	Feathers, plumage, and manufactures thereof	179	26.5	148	21.2	156	28.8	119	28.1	304	18.5	108	17.7	160	18.9	1	0.1
219	Fabricated textile products	5,457	26.1	5,235	25.0	4,811	27.0	3,645	25.8	50,771	34.4	40,885	38.3	9,876	21.2	34	4.3
909	Saddlery, harness, and whips	980	26.0	971	25.0	903	27.9	795	27.2	3,376	25.3	2,077	29.9	1,239	23.1	4	2.5
130	Sugar, cane, not including products of refineries	950	25.8	554	24.5	723	24.8	430	28.1	8,229	31.3	5,559	31.4	2,670	33.4	11	14.9
1605	Brushes other than rubber	2,101	25.7	2,346	25.9	1,744	25.6	1,538	25.6	13,152	31.2	3,855	29.8	9,287	36.4	6	2.4
512	Stereotyping and electrotyping, not done in printing establishments	1,519	25.5	4,327	31.0	1,049	28.8	2,023	23.9	9,603	35.0	1,263	33.9	8,343	36.4	11	5.4
1601	Artificial and preserved flowers and plants	999	25.3	712	21.4	862	26.9	608	23.3	1,759	19.6	773	23.4	986	17.3	5	2.6
1624	Mattresses and bedspreads, n. e. c.	4,464	24.9	5,145	26.0	3,925	25.4	4,044	27.5	21,879	25.8	12,327	25.2	9,552	21.6	13	1.1
902	Boot and shoe cut stock and findings	4,965	24.5	5,152	24.2	4,657	25.5	4,618	27.5	33,518	31.0	24,279	31.9	9,248	21.1	24	4.8
117	Cheese	1,212	24.0	1,251	25.6	901	22.8	913	23.2	17,931	18.1	14,313	17.0	3,618	24.4	149	5.8
1117	Screw-machine products and wood screws	4,128	23.9	4,802	21.8	3,644	24.3	3,850	22.9	15,497	21.4	6,710	25.2	6,737	18.5	8	2.7
315	Synthetic-resin, cellulose plastic, etc., n. e. c.	3,371	23.5	3,730	24.2	3,035	23.8	3,115	25.8	13,855	27.6	6,370	30.0	7,495	25.8	14	9.2
704	Lubricating greases, not made in petroleum refineries	753	23.4	1,048	21.1	473	24.5	541	23.7	8,029	22.2	4,941	23.8	3,083	21.1	6	3.3
1616	Theatrical scenery and stage equipment	90	22.8	179	25.8	62	22.2	106	24.3	491	25.3	223	30.2	265	22.3	4	8.3
1125	Tools, not including edge tools, machine tools, files, or saws	3,427	22.8	3,817	20.8	2,925	23.1	2,912	21.9	12,571	23.9	4,617	25.0	7,944	23.4	13	3.8
329	Wood turned and shaped and other wooden goods, n. e. c.	5,185	21.8	4,186	20.4	4,867	22.6	3,714	23.1	14,109	23.6	6,944	26.6	7,169	21.3	13	1.7
600	Cleaning and polishing preparations	965	21.7	1,431	21.0	696	24.6	879	29.0	10,376	21.5	4,258	24.6	6,118	24.3	4	1.0
1019	Statuary and art goods (excluding concrete), factory product	193	21.5	277	25.3	146	20.3	174	21.7	935	32.4	127	13.0	819	35.8	4	3.8
1309	Pumps (hand and power) and pumping equipment	4,227	21.2	6,536	24.2	3,140	21.0	4,361	25.2	17,722	29.4	6,194	17.6	11,528	22.3	4	1.2
313	Liquors, vinous	655	21.0	677	18.7	550	23.6	429	19.9	7,185	19.7	2,446	16.0	4,739	22.4	6	1.9
106	Copperware	2,222	20.8	2,222	22.6	2,071	31.9	1,944	25.8	9,261	19.9	5,824	19.5	3,432	23.6	26	6.4
1063	Cutlery (not including silver and plated cutlery) and edge tools	3,095	20.0	3,617	20.3	2,759	20.1	2,665	19.7	17,927	35.0	3,676	24.2	14,251	36.9	5	1.9
1618	Hand stamps and stencils and brands	616	19.8	721	17.4	496	22.0	491	19.4	1,681	18.0	590	21.1	1,121	16.8	8	2.9
117	Food preparations not elsewhere classified	3,401	19.6	3,154	16.3	3,108	22.0	2,630	21.8	75,135	37.7	65,526	41.3	9,609	15.0	163	16.2
104	Canned and cured fish, crabs, shrimps, oysters and clams	2,775	19.4	1,728	20.9	2,618	19.6	1,306	20.7	16,310	26.9	9,340	24.0	6,920	32.3	8	2.9
1321	Beer shops	3,228	19.2	4,496	20.1	2,399	18.1	2,820	19.1	14,369	19.6	7,170	23.0	7,199	19.3	7	1.7
305	Caskets, coffins, burial cases, and other morticians' goods	3,094	19.2	3,758	19.2	2,849	20.7	3,127	22.6	11,551	17.6	5,069	17.2	6,491	17.9	25	4.6
1015	Minerals and earths, ground or otherwise treated	936	19.8	977	17.5	831	19.5	703	19.5	3,348	15.5	1,252	14.4	2,096	16.3	11	6.9
910	Trunks, suitcases, and bags	1,441	18.8	1,328	16.1	1,360	20.4	1,139	18.0	4,764	16.9	2,453	16.4	2,311	17.3	5	1.6
103	Butter	4,629	18.6	4,883	17.2	3,681	19.4	2,878	17.0	86,266	17.2	71,712	17.0	14,551	18.6	160	4.6
628	Perfumes, cosmetics, and other toilet preparations	2,348	17.9	2,596	16.1	1,708	18.3	1,643	19.2	25,636	21.4	9,348	21.0	16,288	21.7	6	1.1

For footnotes, see end of table.



1935, based on number of persons employed—Continued  
 sands of dollars]

Largest eight producers												Industry		Industry number	
Persons employed		Wages and salaries		Wage earners		Value of product		Cost of materials, etc. <sup>1</sup>		Value added by manufacture <sup>2</sup>		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 SMALL INDUSTRIES—Continued															
7,994	54.8	7,041	55.5	7,420	54.8	5,738	55.3	23,859	63.0	9,291	62.8	14,568	63.1	21	29.6
4,694	44.0	5,551	41.7	4,045	44.8	4,038	44.4	18,626	47.7	9,728	46.9	8,898	38.9	25	15.1
5,085	45.0	5,404	44.9	4,402	45.5	4,211	46.7	16,439	47.2	7,921	47.8	8,518	45.6	15	7.7
2,589	49.1	1,970	48.0	2,473	50.6	1,622	50.4	8,259	44.8	4,721	49.7	3,338	39.6	9	10.1
6,983	48.7	9,621	49.5	5,318	50.1	6,638	53.0	27,943	44.5	12,235	42.5	15,708	46.1	12	9.4
4,008	42.3	2,740	28.4	3,367	42.9	1,991	39.3	36,246	49.0	30,736	40.1	5,510	33.5	193	34.3
7,779	53.4	9,836	54.1	6,870	54.9	7,601	56.8	27,718	48.3	14,360	49.3	13,358	47.1	19	13.9
6,522	41.6	4,280	40.3	5,621	42.5	2,543	43.0	81,750	43.5	69,907	43.5	11,843	43.3	143	31.2
1,390	45.8	1,534	38.2	1,216	51.5	1,176	46.7	11,483	53.4	6,135	53.1	5,348	53.6	10	5.4
4,952	56.2	6,169	56.5	4,350	55.4	4,912	56.6	16,368	59.5	5,232	54.1	11,136	62.4	9	16.1
4,402	43.8	4,161	39.7	4,129	43.3	3,516	43.7	31,944	45.7	20,386	45.9	11,558	48.5	24	24.1
9,871	43.0	11,217	41.8	8,894	44.2	9,690	45.0	34,144	45.1	13,362	42.0	20,782	47.5	16	6.3
9,519	40.8	10,027	38.6	7,370	39.9	9,210	38.9	29,715	31.4	7,218	52.4	22,497	27.5	13	14.0
9,326	45.1	7,293	42.8	8,292	47.5	5,363	45.9	58,356	41.6	39,760	42.6	18,596	39.9	165	25.1
2,280	39.9	2,833	36.8	1,903	39.1	2,004	37.2	14,630	36.7	7,803	35.1	6,627	38.7	24	9.3
2,777	46.4	3,532	45.5	2,132	47.0	2,308	45.3	11,148	49.0	4,769	47.9	6,379	49.9	12	9.0
10,114	43.4	11,233	40.9	9,243	44.7	9,277	44.4	53,820	44.7	17,686	41.2	36,144	46.7	60	39.2
1,705	47.9	2,265	40.1	1,387	52.3	1,311	49.7	14,919	44.4	9,069	43.7	5,910	42.4	28	18.2
1,618	43.8	1,806	44.0	1,407	46.9	1,247	46.0	9,403	46.3	5,932	45.6	3,471	42.8	25	7.8
214	45.0	349	47.1	127	47.6	142	49.1	1,930	53.1	877	53.3	1,053	53.0	8	12.2
6,224	48.1	9,920	48.4	7,754	48.1	6,929	51.0	24,456	47.4	5,100	39.1	19,355	50.3	10	4.2
8,530	41.8	7,236	39.6	7,726	41.5	5,551	39.8	30,684	44.6	14,950	43.3	15,734	45.8	11	11.2
918	39.4	994	37.2	780	42.1	634	36.4	3,556	41.0	1,653	40.3	1,903	41.7	10	7.9
4,202	34.3	5,213	33.3	3,909	36.6	4,574	42.0	41,965	59.8	16,683	57.2	24,142	61.7	14	2.6
8,859	40.8	1,153	35.4	718	47.9	646	44.0	8,948	49.9	4,228	50.4	4,720	49.5	9	7.4
8,386	41.7	11,414	40.9	6,506	42.8	7,534	42.9	29,383	43.0	9,156	41.6	20,227	42.3	16	5.7
9,315	37.3	11,493	40.0	8,647	37.5	10,007	41.4	31,462	33.8	13,912	28.6	17,550	39.5	11	3.7
8,606	41.0	13,369	44.3	7,927	40.6	11,815	43.9	21,282	44.0	7,533	43.3	13,749	41.4	66	25.5
3,360	31.1	3,703	29.8	3,046	33.2	2,957	29.3	50,221	38.6	42,776	41.4	7,445	27.9	135	16.7
2,175	32.7	3,657	39.0	1,829	34.5	2,739	42.0	8,048	40.0	1,437	31.3	6,611	42.6	10	2.6
7,113	29.6	9,957	31.4	5,262	30.4	6,282	32.7	79,071	37.7	35,045	34.6	44,026	40.6	181	7.4
209	39.9	243	39.7	241	42.1	192	43.0	473	28.8	149	24.4	324	31.3	8	11.0
6,698	32.0	6,398	30.5	5,971	33.5	4,614	32.2	70,374	47.7	56,886	53.3	13,463	33.0	41	5.2
1,340	35.5	1,365	35.2	1,209	37.4	1,096	37.5	5,043	37.8	3,114	40.3	1,929	34.8	8	5.0
1,400	37.7	946	41.9	1,094	37.2	685	41.8	12,385	47.1	8,537	46.7	3,848	48.2	16	21.6
3,231	39.5	3,676	40.0	2,677	39.3	2,402	40.0	15,321	43.5	6,273	37.7	12,048	47.2	11	4.4
2,128	35.7	5,708	40.9	1,422	33.6	2,967	35.1	12,371	46.0	1,559	41.9	10,812	46.7	16	7.8
1,198	33.3	1,156	34.8	1,120	34.9	995	38.1	2,448	31.7	1,071	32.4	1,777	31.2	9	4.7
5,295	29.6	6,128	31.0	4,679	30.2	4,799	32.6	26,458	31.2	15,275	31.2	11,183	31.2	30	3.6
5,821	28.7	6,225	29.3	5,434	29.7	5,480	32.7	46,846	42.0	35,911	47.2	10,935	30.8	32	6.6
1,425	28.2	1,500	30.7	1,177	27.1	1,123	28.5	22,245	22.5	17,829	21.2	4,416	29.8	189	7.3
6,083	35.2	7,277	33.0	5,266	31.2	5,752	34.2	20,725	32.9	9,584	31.7	10,871	29.8	12	4.0
5,251	36.6	5,963	36.6	4,689	38.8	4,845	40.1	22,326	44.4	10,011	47.1	12,315	42.4	20	13.1
1,072	33.3	1,469	29.9	725	37.5	834	36.5	14,472	40.1	9,166	44.1	5,306	34.6	13	7.2
151	35.3	335	45.3	109	39.1	212	48.6	832	43.0	335	44.8	467	41.8	8	16.6
5,131	34.1	5,827	31.7	4,428	35.0	4,483	33.7	15,981	36.1	6,878	36.8	12,103	35.8	17	5.0
6,489	27.2	5,315	25.9	6,044	28.1	4,594	28.6	17,076	28.6	8,259	31.7	8,817	26.2	27	3.6
1,442	32.5	2,142	31.5	1,020	36.1	1,226	40.4	14,502	34.2	5,603	32.4	8,899	35.4	8	2.0
320	35.7	469	42.9	255	35.5	320	39.9	1,333	46.1	250	37.5	1,083	48.7	8	7.6
6,185	31.0	9,019	33.4	4,628	30.9	3,950	34.3	30,643	35.2	11,038	31.3	19,615	37.9	9	2.8
829	26.5	975	26.9	689	29.5	598	28.4	13,703	37.6	5,740	37.5	7,933	37.7	11	3.5
3,641	34.1	3,649	36.7	3,451	34.9	3,140	39.3	18,845	40.5	12,668	42.3	6,177	37.2	88	21.6
4,475	28.9	3,103	28.6	4,022	27.0	3,802	28.8	23,121	45.2	4,394	34.9	17,727	48.5	10	8.8
929	29.8	1,132	37.3	747	33.1	783	30.9	2,696	28.9	882	33.2	1,814	27.2	15	5.4
4,783	27.6	4,750	24.6	4,249	30.1	3,646	30.1	97,543	43.8	80,391	30.7	17,152	26.7	186	18.1
3,536	26.8	2,718	32.9	3,602	27.0	2,659	32.6	23,942	38.7	14,447	36.9	9,015	42.1	14	5.8
4,638	27.6	6,351	29.0	3,575	26.9	4,228	28.6	23,914	32.7	11,816	32.9	12,062	32.5	14	3.4
3,970	24.6	4,872	24.9	3,625	26.3	3,983	28.8	15,437	23.5	6,825	23.2	8,632	23.8	30	5.5
1,579	31.9	1,664	31.4	1,396	32.8	1,222	33.8	5,882	27.3	2,134	24.6	3,748	29.1	18	11.2
2,066	27.0	2,109	25.5	1,907	28.6	1,662	26.7	7,451	26.4	3,824	25.6	3,627	27.2	10	3.2
6,833	27.4	7,039	29.4	5,154	27.9	4,477	25.6	128,750	25.7	107,407	25.4	21,343	27.3	214	0.7
3,344	25.5	3,736	23.3	2,640	27.3	2,460	26.7	48,655	40.7	15,499	34.8	33,156	44.2	10	1.8
Cast-iron pipe and fittings.....															
Envelopes.....															
Sporting and athletic goods, not including firearms or ammunition.....															
Handkerchiefs.....															
Cranes, and derrick, excavating, and road-building machinery.....															
Foultry dressing and packing, wholesale.....															
Bolts, nuts, washers, and rivets.....															
Oil, cake, and meal, cottonseed.....															
Belting and packing, leather.....															
Lace goods.....															
Bags, paper, exclusive of those made in paper mills.....															
Plumbers' supplies.....															
Cash registers, adding and calculating machines, business machines.....															
Fertilizers.....															

TABLE I.—Concentration in manufacturing industries,

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. <sup>1</sup>		Value added by manufacture <sup>2</sup>		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
210 SMALL INDUSTRIES—Continued																	
1604	Brooms.....	812	17.8	661	17.6	709	18.5	537	17.5	2,324	16.2	1,048	14.0	1,281	18.7	4	1.1
1207	Lighting equipment.....	3,560	17.7	4,668	19.2	3,278	19.7	4,035	23.4	19,434	22.7	10,478	26.3	8,856	19.6	4	.8
1107	Forgings, iron and steel.....	2,436	17.6	10,388	53.8	2,112	17.2	9,622	63.7	13,657	20.6	6,979	20.1	6,678	21.1	13	7.0
1013	Lime.....	1,463	17.6	1,434	18.9	1,350	18.0	1,208	20.0	5,036	21.6	1,716	19.2	3,320	23.1	18	9.5
906	Leather goods not elsewhere classified.....	1,224	17.3	1,284	17.2	1,057	17.6	1,000	18.4	4,855	18.4	2,149	16.2	2,706	20.7	4	1.0
1648	Toys, games, and playground equipment.....	2,936	16.9	2,845	17.5	2,718	17.7	2,311	19.1	8,280	15.9	3,281	13.9	5,008	17.6	7	1.8
301	Baskets and rattan and willowware, not including furniture.....	1,627	16.9	821	14.4	1,595	17.4	713	15.5	2,138	14.8	949	16.6	1,189	13.6	8	3.9
313	Mirror and picture frames.....	528	16.5	553	15.6	488	18.2	429	16.8	1,541	15.6	645	15.5	896	15.8	4	2.4
1606	Buttons.....	1,857	16.3	1,774	16.9	1,715	16.6	1,446	17.7	3,904	13.9	1,638	14.8	2,269	13.4	8	2.7
905	Gloves and mittens, leather.....	1,617	15.3	1,567	15.7	1,547	15.8	1,395	16.4	4,036	14.3	1,782	13.3	2,254	13.3	4	1.8
506	Lithographing.....	3,330	15.3	4,966	14.1	2,800	15.8	3,723	15.4	13,097	14.2	4,565	15.3	8,504	13.7	10	2.6
114	Feeds, prepared, for animals and fowls.....	2,355	15.3	2,780	15.1	1,779	15.4	1,837	16.6	62,533	21.7	49,172	21.3	13,561	23.0	45	4.8
115	Flavoring extracts, sirups, and related products.....	670	14.7	853	12.7	499	17.2	403	15.2	32,133	47.4	10,751	36.8	21,382	55.3	11	2.7
121	Macaroni, spaghetti, vermicelli, and noodles.....	970	13.9	1,108	15.2	876	14.6	858	16.2	7,325	15.4	4,552	14.6	2,673	16.9	5	1.5
627	Insecticides and fungicides, etc., n. e. c.....	733	13.4	941	11.8	546	15.7	593	17.5	6,776	12.7	3,897	16.0	2,879	9.9	6	1.1
1210	Jewelry.....	2,521	12.2	2,671	10.8	2,331	13.6	2,245	12.9	6,730	9.5	2,675	8.8	4,055	10.0	4	.4
211	Waste and related products.....	1,284	12.1	1,265	11.6	1,144	12.4	866	11.8	9,518	14.2	5,318	13.1	3,860	16.2	12	3.8
501	Bookbinding and blank-book making.....	2,838	11.7	3,639	12.0	2,384	11.7	2,707	12.4	9,412	13.4	3,062	14.5	6,750	12.9	8	.8
1014	Marble, granite, slate, and other stone, cut and shaped.....	2,028	11.0	1,716	7.8	1,784	11.7	1,319	8.1	4,020	7.1	1,657	9.1	2,363	6.2	16	1.1
1204	Sheet-metal work, not specifically classified.....	2,362	10.8	2,960	10.4	1,946	11.2	2,220	11.6	19,018	17.4	11,568	20.0	7,450	14.4	5	.4
1612	Miscellaneous articles not elsewhere classified.....	1,714	10.4	2,049	12.6	1,535	10.8	1,502	13.2	5,533	11.1	1,950	9.4	3,583	12.4	4	.6
507	Photoengraving, not done in printing establishments.....	1,316	10.2	3,257	10.7	1,076	11.4	2,586	12.1	7,017	13.2	1,657	21.1	5,360	11.8	8	1.2
214	Furnishing goods, men's.....	2,506	10.1	4,860	6.8	2,377	10.5	1,274	7.4	5,440	6.1	3,101	6.5	2,339	5.6	6	.7
1625	Models and patterns, not including paper patterns.....	485	9.8	996	11.9	382	9.3	619	10.1	1,737	11.8	623	19.5	1,174	9.7	6	1.0
1640	Signs and advertising novelties.....	1,719	9.7	2,068	9.2	1,475	10.8	1,567	10.5	5,311	8.6	1,794	8.5	3,517	8.8	41	3.8
198	Pocketbooks, purses, and cardcases.....	1,146	9.5	1,165	10.0	1,086	9.5	834	9.0	3,191	7.4	1,345	6.0	1,846	8.9	5	1.6
1205	Electroplating.....	1,689	9.5	810	9.0	612	9.8	627	9.0	2,268	12.4	805	17.5	1,463	10.7	7	1.3
218	Housefurnishings.....	1,356	8.1	1,171	7.6	1,237	8.6	999	9.2	6,318	7.3	3,673	6.6	2,645	8.4	6	.8
1005	Concrete products.....	799	7.5	884	7.4	674	8.0	661	8.4	3,656	8.1	1,535	7.6	2,121	8.5	29	2.4
221	Embroideries; trimmings; stamped art goods.....	721	5.3	848	5.8	642	5.4	511	4.8	2,657	5.7	1,497	7.6	1,160	4.3	6	.5
101	Beverages, nonalcoholic.....	976	4.4	1,328	4.5	818	4.9	934	5.4	12,942	8.1	3,943	6.3	8,999	9.3	68	2.1
1615	Fur goods.....	341	2.1	699	2.4	294	2.4	548	2.6	3,397	2.4	2,257	2.5	1,141	2.1	4	.2

<sup>1</sup> Large industries, those employing more than 100,000 persons; medium industries, those employing 25,000 to 100,000 persons; small industries, those employing less than 25,000 persons.

<sup>2</sup> Includes cost of materials, mill and shop supplies, containers, fuel, and purchased electric energy.

<sup>3</sup> Value of products less cost of materials, containers, fuel, and purchased electric energy.

TABLE II.—Concentration in manufacturing

[Value in thou

21 LARGE IN

Industry No.	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. <sup>1</sup>		Value added by manufacture <sup>2</sup>		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
1408	Motor vehicles, not including motorcycles.....	118,059	72.1	185,984	74.6	108,550	73.9	167,735	77.3	2,088,047	87.3	1,600,084	88.2	487,963	84.6	40	33.0
1407	Motor-vehicle bodies and motor-vehicle parts.....	161,924	62.0	241,401	64.9	152,881	63.5	223,579	68.1	1,076,150	69.4	733,285	73.1	342,865	62.6	42	5.1
123	Meat packing, wholesale.....	53,636	38.7	95,639	53.1	41,301	35.4	73,259	53.7	1,313,029	55.6	1,151,767	56.7	161,262	48.5	94	7.7
1112	Steel-works and rolling-mill products.....	179,282	46.0	237,666	46.3	169,280	46.2	206,616	47.0	951,819	49.3	578,380	52.7	373,439	45.5	76	19.2
1303	Electrical machinery, apparatus, and supplies.....	88,641	39.7	126,399	43.7	69,721	38.8	86,073	43.5	426,276	44.4	142,079	38.3	284,197	48.2	106	7.6
1502	Railroad repair shops, steam.....	51,400	35.6	72,043	36.0	48,147	35.5	64,230	35.8	139,183	37.4	67,124	39.5	72,059	35.7	114	27.4
904	Boots and shoes, other than rubber.....	45,401	21.0	42,944	21.5	43,715	21.6	40,459	23.6	97,051	26.0	92,661	27.8	74,390	23.9	68	6.6
212	Wool and hair manufactures.....	36,746	20.9	35,212	19.9	34,892	21.0	31,453	20.6	171,721	24.2	114,467	26.5	57,254	20.5	47	6.7

For footnotes, see end of table.

1935, based on number of persons employed—Continued

sands of dollars)

Largest eight producers																Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.		Value added by manufacturer		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 SMALL INDUSTRIES—Continued																	
1,108	24.3	933	24.9	1,046	25.2	773	25.2	3,297	23.0	1,186	19.9	1,811	26.4	8	2.3		
5,290	23.3	7,025	28.6	4,652	29.6	5,570	32.3	29,831	34.8	13,750	34.5	16,081	35.1	8	1.6		
4,088	29.5	12,775	66.2	3,641	24.7	11,698	76.8	21,331	32.5	11,251	32.4	10,280	32.5	19	10.3		
2,332	28.1	2,213	29.1	2,158	29.8	1,882	31.1	8,079	34.6	2,968	33.3	5,111	35.5	29	15.3		
1,566	22.1	1,695	22.7	1,341	22.3	1,290	23.2	6,967	26.5	3,238	24.4	3,759	28.7	8	2.0		
4,432	25.5	4,444	27.3	4,076	26.1	3,715	29.0	13,366	25.6	5,584	24.8	7,512	25.4	11	2.9		
2,336	24.3	1,458	25.6	2,219	24.6	1,176	25.5	3,710	25.6	1,461	25.5	2,249	25.7	14	6.9		
877	27.4	1,021	28.8	756	28.2	775	29.6	3,076	31.2	1,452	34.8	1,624	28.6	8	4.8		
2,942	25.9	2,852	27.1	2,760	24.2	2,302	28.2	7,372	29.0	2,937	26.5	4,642	27.4	15	5.1		
2,563	24.2	2,500	25.0	2,428	24.8	2,215	26.0	6,527	25.2	3,069	22.4	3,518	29.3	8	3.6		
3,228	24.0	7,936	32.5	4,266	24.1	7,720	23.7	20,615	22.4	7,042	23.5	13,573	21.9	14	3.6		
3,371	21.8	4,194	32.8	2,562	22.1	2,689	24.3	99,058	34.3	79,453	34.4	19,665	33.8	62	6.6		
993	19.8	1,353	20.2	623	21.5	598	20.3	36,629	54.0	12,610	43.2	24,019	62.1	16	3.9		
1,672	24.1	1,884	25.2	1,522	25.3	1,439	27.1	12,574	26.4	8,093	25.4	4,481	28.4	9	2.7		
1,114	20.4	1,194	18.8	801	23.1	725	24.3	10,274	19.2	5,522	22.2	4,752	16.3	14	2.6		
3,201	15.9	3,710	15.0	2,972	17.4	3,306	16.9	19,945	15.4	4,110	14.6	6,535	16.1	8	8.8		
1,879	17.2	1,988	18.2	1,331	18.1	1,594	19.1	13,934	24.1	10,680	25.3	5,254	22.1	16	5.1		
4,124	17.0	5,412	17.9	3,408	16.7	3,362	17.7	15,111	20.6	4,474	23.1	10,237	19.6	14	1.4		
2,825	15.3	2,805	12.7	2,185	16.3	2,193	13.4	7,827	13.9	2,993	16.4	4,834	12.6	24	1.7		
3,184	14.6	4,138	14.4	2,511	14.5	2,810	14.4	28,905	26.4	28,408	31.9	10,497	20.4	39	2.8		
2,782	16.9	3,079	18.9	2,172	17.4	2,339	19.9	9,268	18.7	3,675	17.8	5,593	19.3	10	1.5		
1,999	15.4	4,959	16.3	1,633	17.4	3,927	18.4	10,758	20.2	2,802	35.7	7,956	17.5	13	2.0		
3,908	15.8	2,441	11.3	3,728	16.5	2,151	12.5	9,414	10.5	5,532	11.5	3,882	9.3	10	1.2		
749	15.1	1,392	17.2	611	14.9	952	15.5	2,446	16.0	729	22.8	1,717	14.2	10	1.7		
2,735	15.4	3,352	14.8	2,270	15.6	2,463	16.5	9,035	14.7	3,122	14.7	5,913	14.7	51	4.7		
2,020	16.1	1,936	16.6	1,570	16.5	1,188	16.1	6,512	15.1	3,309	14.8	3,206	15.5	10	3.2		
1,127	15.6	1,362	15.2	1,021	16.4	1,083	15.6	3,237	17.7	1,064	23.1	2,176	15.9	11	2.0		
2,218	13.3	1,932	12.6	1,567	13.9	1,531	14.1	11,056	12.7	7,104	12.8	3,952	12.5	20	25.9		
1,228	11.6	1,507	12.4	1,034	12.3	1,041	13.3	5,102	11.3	1,596	9.9	3,106	12.5	17	3.8		
1,154	8.4	1,339	9.1	1,010	8.5	809	7.5	5,163	11.2	3,018	15.4	2,145	8.0	10	9.9		
1,317	5.9	1,854	6.3	1,089	6.5	1,164	6.7	21,079	13.2	7,102	11.4	13,977	14.1	87	2.7		
493	3.0	1,012	3.5	431	3.4	816	3.9	6,414	4.5	4,535	5.1	1,879	3.4	8	4.4		

TABLE II.—Concentration in manufacturing industry

[Values in thou

Industry number	Industry	Largest four producers														Number of establishments	
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. 1		Value added by manufacturer 2			
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry		Number
21 LARGE INDUSTRIES—Continued																	
105	Canned and dried fruits and vegetables; preserves, jellies, fruit butters, pickles, and sauces	20,600	16.3	17,549	19.5	19,475	16.7	14,857	21.1	147,587	22.7	78,645	19.2	68,942	28.7	86	1.3
510	Printing and publishing, newspaper and periodical	33,003	14.1	70,728	17.0	17,499	14.7	35,574	18.4	242,195	20.3	57,626	24.6	184,569	19.3	55	1.6
102	Bread and other bakery products	37,800	15.8	48,068	16.7	34,671	15.9	41,875	16.8	225,220	18.2	102,073	15.2	123,147	21.8	225	1.2
407	Paper	14,873	13.0	17,090	12.2	13,542	13.1	14,382	13.1	104,697	14.7	62,394	14.7	42,393	15.0	38	6.4
203	Cotton manufactures	32,755	8.3	23,567	8.5	32,632	8.4	21,941	8.9	86,477	8.4	54,542	8.7	31,993	7.9	25	2.0
213	Men's cotton garments	11,633	9.0	7,786	8.9	11,182	9.2	7,635	9.5	31,025	7.5	19,215	10.5	11,810	8.0	48	4.1
1305	Machinery, n. e. c.	10,762	7.6	15,976	7.9	8,237	7.5	11,398	8.6	40,655	7.0	14,596	6.7	26,059	7.2	11	5.5
310	Furniture, including store and office fixtures	7,553	5.1	7,165	4.9	6,999	5.4	6,200	5.5	24,225	5.6	11,741	5.6	12,484	5.5	16	.5
234	Knit goods	11,979	5.1	13,089	6.1	11,233	5.1	11,801	6.4	32,174	5.3	12,550	4.3	19,624	6.3	13	.7
215	Men's, youth's, and boys' clothing, n. e. c.	8,639	5.2	9,508	5.3	7,999	5.2	8,066	5.6	31,274	5.1	16,591	5.6	14,774	4.5	13	.5
311	Lumber and timber products, n. e. c.	10,158	3.8	11,716	5.6	9,734	3.8	10,838	5.9	25,927	4.7	6,588	3.2	19,339	5.6	14	.2
508	Printing and publishing, book, music, and job	7,940	4.8	11,986	4.7	6,632	5.2	8,795	5.2	30,876	4.4	7,745	4.0	23,131	4.6	10	.1
216	Women's, misses', and children's apparel, n. e. c.	4,005	1.4	2,833	.9	3,824	1.5	2,435	1.0	17,934	1.4	8,312	1.3	9,642	1.5	11	.1
44 MEDIUM INDUSTRIES *																	
1652	Cigarettes	23,478	90.3	19,653	89.1	22,156	90.6	16,425	89.7	723,262	89.7	570,348	89.0	152,914	92.5	9	31.0
803	Rubber tires and inner tubes	52,172	79.4	80,787	83.2	45,644	79.9	66,080	84.4	361,202	80.9	213,723	80.5	147,479	81.7	12	28.6
1123	Tin cans and other tinware, n. e. c.	21,739	68.6	25,610	69.1	18,597	67.6	19,295	69.3	296,371	80.8	169,353	82.2	67,008	77.6	76	37.3
629	Rayon and allied products	40,507	74.8	43,755	74.7	38,249	75.8	38,980	76.9	137,520	74.3	46,742	72.5	90,778	75.2	15	46.9
1301	Agricultural implements	42,765	70.0	57,802	73.6	37,155	70.3	48,306	75.1	210,972	72.4	102,000	73.2	108,972	71.8	22	9.1
301	Carpets and rugs	17,234	52.2	18,959	52.4	16,031	52.6	16,191	53.2	63,185	51.1	29,356	47.0	35,829	55.0	8	6.5
1310	Refrigerators and refrigerating and ice-making apparatus	19,162	44.8	24,279	47.0	17,202	46.3	20,136	49.8	105,318	46.1	51,440	44.2	51,878	48.1	7	2.5
1008	Glass	27,296	37.1	34,540	40.2	24,731	36.8	29,344	41.1	127,435	44.9	45,574	41.4	81,861	47.1	38	17.8
1410	Ship and boatbuilding, steel and wooden, including repair work	23,187	45.2	31,447	44.7	20,272	43.2	24,875	44.9	69,392	44.8	27,106	44.5	42,280	44.8	17	5.1
1119	Steam and hot-water heating apparatus and steam fittings	13,195	41.1	15,724	40.7	11,579	42.7	12,729	44.2	43,206	38.7	13,802	36.9	29,404	39.6	15	3.5
1608	Cigars	17,342	29.6	11,703	30.1	16,591	29.6	10,202	30.5	58,225	38.5	30,481	39.2	27,744	37.8	25	3.6
705	Petroleum refining	35,216	38.3	36,061	39.1	30,007	38.8	43,620	39.8	701,298	38.2	573,791	38.8	127,597	35.1	64	16.2
1212	Nonferrous-metal alloys, products, excluding aluminum, n. e. c.	23,893	32.8	29,992	31.9	20,898	33.2	24,082	33.4	148,489	37.8	95,194	43.3	53,295	30.7	54	9.9
703	Gas, manufactured, illuminating and heating	6,418	25.6	10,827	28.7	5,727	29.1	9,093	33.0	130,216	37.6	34,710	35.5	95,506	38.5	14	2.7
608	Chemicals, n. e. c.	26,968	33.6	39,816	34.0	22,312	34.6	29,749	37.0	248,622	37.1	115,246	35.0	132,776	39.1	60	10.5
1109	Hardware, n. e. c.	16,307	34.3	20,155	37.1	14,801	34.5	16,661	39.3	53,767	36.4	19,473	33.9	34,294	38.0	10	2.5
626	Paints, pigments, and varnishes	10,310	26.7	14,446	25.5	8,089	29.2	10,129	31.4	134,896	32.3	71,802	30.9	63,004	34.0	42	3.9
1304	Engines, turbines, water wheels, and windmills	6,984	25.1	11,293	29.2	5,391	24.4	7,697	28.7	30,743	30.7	12,888	30.6	17,355	30.8	4	2.7
116	Flour and other grain mill products	6,496	18.9	8,567	20.5	5,386	20.3	6,660	24.6	250,460	29.4	210,194	29.4	40,266	29.4	41	1.9
1319	Radio apparatus and phonographs	17,695	33.9	21,126	36.6	14,414	32.2	14,380	33.5	57,450	28.6	27,117	26.2	30,333	31.1	6	3.0
1322	Foundries	19,877	29.4	28,112	24.5	19,513	21.8	27,179	27.6	63,139	25.2	25,065	26.5	38,336	24.5	29	2.3
1122	Structural and ornamental metal work	7,959	22.9	9,228	21.6	6,941	25.5	7,251	25.7	39,370	24.5	26,762	28.9	12,608	18.5	21	9.9
611	Drugs and medicines	5,510	17.5	7,742	17.5	4,630	20.9	5,298	24.1	68,151	23.4	15,753	19.9	52,308	25.1	15	1.5
1127	Wirework, n. e. c.	6,692	23.1	8,103	24.2	5,925	25.5	6,669	26.2	27,124	23.1	11,862	21.3	15,272	24.9	9	3.5
410	Pulp (wood and other fiber)	6,216	24.2	6,775	24.0	5,794	24.5	5,877	25.1	37,375	22.7	21,803	22.8	15,982	22.5	31	16.5
907	Leather: Tanned, curried, and finished	10,166	18.5	13,110	19.7	9,381	18.4	11,404	20.4	69,405	22.5	44,144	22.3	25,251	22.9	29	7.6
1318	Machine-tool accessories and machinists' precision tools	5,256	19.3	9,174	20.5	4,740	25.5	7,848	22.8	21,097	21.8	7,766	28.9	13,331	19.1	5	.7
119	Ice, unmanufactured	3,450	13.0	4,559	13.0	2,891	15.2	3,465	16.8	26,531	20.7	4,824	17.2	21,707	21.6	409	10.6
804	Clay products (other than pottery) and nonclay refractories	7,103	14.4	5,531	12.6	6,835	15.3	4,975	14.4	21,419	19.3	8,629	22.7	12,700	17.5	46	4.3
1002	Rubber goods other than tires, inner tubes, and boots and shoes	5,561	18.4	10,533	20.1	7,296	18.1	5,139	20.7	34,336	19.2	17,041	20.7	17,325	18.0	10	2.4
1017	Pottery, including porcelain ware	8,465	17.5	6,014	17.8	5,167	17.9	5,326	19.0	12,674	19.0	3,337	18.6	9,337	19.1	7	2.7
219	Rayon manufactures	13,700	18.6	10,738	17.2	13,432	19.1	9,931	18.1	37,912	18.5	23,975	21.2	13,937	15.2	22	4.9
1121	Stoves and ranges (other than electric) and warm-air furnaces	5,487	11.4	7,224	12.7	5,050	12.1	6,344	14.3	29,768	16.1	10,422	13.7	19,349	17.6	8	2.4
408	Paper goods, n. e. c.	4,826	14.6	5,517	13.9	4,098	14.9	4,088	15.4	27,883	14.2	15,448	14.0	12,435	14.5	11	2.0
319	Boxes, paper, n. e. c.	5,564	8.8	6,331	9.0	4,802	8.7	4,831	9.6	42,031	14.1	28,464	16.9	13,567	10.4	39	3.2
204	Dyeing and finishing cotton, rayon, and silk	11,819	14.9	10,511	12.3	10,975	13.5	8,761	13.2	30,992	13.9	17,274	16.9	18,585	14.5	8	3.5
304	Boxes, wooden, except cigar boxes	2,111	8.4	2,091	10.9	1,911	8.3	1,672	11.1	8,729	13.9	4,782	14.9	3,997	12.8	36	5.4
1307	Machine tools	4,625	13.0	7,449	14.2	3,296	11.5	4,977	13.4	16,785	13.8	4,284	11.8	12,501	14.6	4	1.6
112	Confections	5,484	9.4	5,156	10.0	4,059	9.7	4,116	10.5	32,594	12.5	18,334	11.9	14,260	13.4	4	.3
1129	Stamped and pressed metal products; enameling, japanning, and lacquering	5,266	9.3	6,327	9.7	4,022	9.3	5,027	9.8	25,060	12.0	13,104	13.0	11,856	11.1	8	1.1
134	Liquors, malt	4,227	8.8	11,117	9.8	3,567	9.1	6,224	10.2	49,293	11.8	14,111	10.6	34,452	12.3	6	.9
210	Silk manufactures	4,320	7.8	4,265	9.1	4,149	7.4	3,537	8.7	17,196	11.5	11,196	16.1	6,003	7.5	6	.9
1326	Machine shops	7,711	7.8	11,001	8.2	6,381	7.7	8,338	8.5	36,546	8.7	17,601	10.0	18,945	7.7	11	.6
314	Planing-mill products (including general millwork), made in planing mills not connected with sawmills	2,911	5.1	2,736	4.8	2,584	5.4	2,255	5.3	9,104	4.6	4,823	4.4	4,281	4.9	16	6.6
210 SMALL INDUSTRIES *																	
314	Typewriters and parts	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
624	Oil, essential	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1008	Chewing gum	1,502	69.7	2,323	74.5	1,683	72.7	1,950	81.1	48,958	92.0	18,117	87.5	30,841	94.1	5	19.5

For footnotes, see end of table.

sands of dollars]

Largest eight producers														Industry	Total number of establishments		
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.		Value added by manufacturer					
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry				
21 LARGE INDUSTRIES—Continued																	
23,489	18.9	20,856	20.2	22,373	19.2	17,424	24.7	197,627	30.4	119,905	26.3	77,722	32.3	108	3.9	Canned and dried fruits and vegetables, preserves, jellies, fruit butters, pickles and sauces	
40,021	17.1	84,084	20.2	22,354	18.8	43,225	22.4	303,971	25.5	73,072	31.2	230,899	24.1	59	1.7	Printing and publishing, newspaper and periodical	
52,427	21.9	67,399	23.4	48,263	22.1	59,115	23.7	316,718	25.6	154,559	23.0	162,179	28.7	348	1.8	Bread and other bakery products	
22,166	19.3	24,157	18.6	19,826	17.1	13,447	19.5	135,715	11.1	60,983	21.2	62,732	22.9	34	10.6	Cotton manufactures	
57,760	14.6	40,547	16.1	56,171	14.8	68,042	15.4	148,119	11.9	34,459	14.9	34,690	13.5	8	4.7	Men's cotton garments	
16,648	11.7	24,331	12.1	13,003	11.8	18,188	13.6	64,175	11.0	24,092	11.0	40,178	11.0	23	9	Machinery, n. e. c.	
11,841	8.0	11,426	7.9	10,801	8.8	9,938	8.5	38,303	8.8	19,064	9.2	19,259	8.5	22	7	Furniture, including store and office fixtures	
20,216	8.7	20,210	9.4	19,183	8.4	18,387	10.0	51,687	8.5	21,369	7.2	30,318	9.7	29	14	Knit goods	
12,510	7.4	15,895	8.8	11,408	7.4	12,408	8.6	54,052	8.8	25,173	9.3	26,573	8.3	20	1	Men's, youths', and boys' clothing, n. e. c.	
12,191	7.4	16,188	8.4	16,704	7.1	14,012	8.6	42,042	8.6	12,013	5.9	28,015	13.4	8	4	Lumber and timber products, n. e. c.	
10,863	6.5	16,677	6.5	8,357	6.6	11,688	6.9	45,175	6.5	11,163	5.7	34,012	6.7	53	1	Printing and publishing, book, music, and job	
8,664	3.0	6,114	2.0	8,292	3.2	5,242	2.2	30,371	2.4	15,233	2.4	15,138	2.3	19	2	Women's, misses', and children's apparel, n. e. c.	
44 MEDIUM INDUSTRIES																	
25,795	99.2	21,786	98.8	24,285	99.3	18,182	99.3	101,602	99.4	637,296	99.4	16,395	99.4	14	48.3	Cigarettes	
57,716	87.8	87,996	90.6	50,330	88.1	71,678	91.6	403,364	90.4	238,108	89.7	165,329	91.6	16	38.1	Rubber tires and inner tubes	
25,552	74.3	27,539	74.3	20,214	54.3	28,567	74.7	280,567	87.6	69,720	89.7	81	87	42	1	Tires and all other tires, n. e. c.	
48,411	89.4	52,157	89.0	45,477	90.0	45,631	90.0	167,066	90.2	57,555	89.2	109,451	90.7	20	62.5	Rayon and allied products	
51,915	85.0	68,780	87.5	45,125	85.4	57,258	89.0	255,994	87.7	123,537	88.5	132,267	87.1	33	13.7	Agricultural implements	
22,124	67.0	24,187	66.7	20,630	62.7	20,816	68.4	57,049	68.4	41,122	65.9	45,927	70.5	13	12.2	Carpets and rugs	
21,851	58.4	29,881	58.9	22,256	56.9	24,446	60.4	130,687	58.0	67,123	57.7	62,953	58.4	11	4.0	Refrigerators and refrigerating and ice-making apparatus	
35,875	48.9	45,304	52.8	32,570	48.8	38,099	53.3	173,296	61.0	70,572	64.2	102,640	63.0	49	23.0	Glass, including plate, steel and wooden, including repair work	
32,020	63.6	44,997	64.0	29,352	63.2	35,382	63.8	190,138	64.0	40,988	67.3	59,170	69.0	26	4.7	Steam and hot-water heating apparatus and steam fittings	
16,497	51.4	19,488	50.4	14,417	33.2	15,617	54.2	54,991	49.2	17,751	47.4	37,240	50.1	26	9.5	Petroleum refining	
23,244	39.7	17,558	40.1	22,280	39.5	13,600	40.8	76,660	50.7	40,964	32.6	35,696	48.6	35	4.7	Nonferrous-metal alloys, products, excluding aluminum, n. e. c.	
53,378	86.0	83,778	88.4	45,719	89.1	66,130	89.3	1,082,481	58.9	520,741	58.9	211,743	58.8	94	23.8	Glass, manufactured, illuminating and heating	
35,153	85.2	43,753	86.6	30,443	48.4	34,693	48.1	209,019	52.4	125,494	57.1	130,525	64.4	63	5.7	Chemicals, n. e. c.	
11,621	46.3	18,507	48.0	9,967	50.6	14,897	53.9	193,962	56.1	51,847	53.0	142,115	57.3	109	21.0	Paints, pigments, and varnishes	
38,172	47.5	33,991	47.8	31,663	48.4	40,105	49.8	324,614	48.5	148,490	45.1	176,154	51.9	90	17.8	Engines, turbines, water wheels, and windmills	
30,775	38.1	28,627	38.1	20,672	38.1	20,672	38.1	69,672	38.1	28,517	38.1	184	38.1	7	7.5	Flour and other grain mill products	
13,557	35.1	18,318	32.3	10,697	38.6	12,856	39.9	174,168	41.8	93,994	40.5	100,174	43.5	70	6.5	Radio apparatus and phonographs	
11,378	40.9	17,268	44.7	8,928	40.5	12,106	45.1	47,233	47.2	26,083	49.2	26,550	45.9	9	6.0	Foundries	
8,738	25.8	11,748	38.1	7,189	27.1	8,642	31.9	315,798	37.0	255,403	37.1	50,395	38.8	94	1.2	Structural and other metal work	
23,605	45.2	26,451	45.8	19,735	44.1	18,679	43.5	77,569	38.6	37,311	36.2	24,058	41.1	13	6.6	Wirework, n. e. c.	
26,117	26.5	35,239	30.5	25,130	28.0	33,122	33.6	82,311	32.9	30,284	33.7	52,027	32.4	68	3.8	Pulp (wood and other fiber)	
10,483	30.1	12,208	28.6	8,913	32.7	9,106	32.3	30,622	31.5	32,351	33.2	18,671	25.5	28	2.5	Leather, tanned, curried, and finished	
7,151	20.5	10,645	24.0	6,083	22.7	8,469	23.3	67,109	33.3	7,802	29.2	12,435	33.1	1	1.0	Machinery tools, accessories and machinists' precision tools	
10,118	36.2	12,359	36.6	9,935	32.7	10,322	39.5	41,481	33.3	19,251	34.6	22,230	33.9	25	4.7	Ice, manufactured	
7,968	31.0	9,004	31.9	7,457	31.1	7,646	32.7	56,569	34.5	34,575	35.9	23,094	32.5	39	2.0	Pottery, including refractory and nonclay refractories	
16,259	29.6	20,448	30.7	15,180	29.7	17,679	31.7	105,753	34.3	66,607	33.7	36,058	35.4	51	13.3	Rubber goods other than tires, inner tubes, and boots and shoes	
7,657	28.1	12,724	28.5	6,817	29.5	10,606	30.8	29,771	30.7	10,334	38.4	19,437	28.8	12	1.6	Rayon manufactures	
4,755	17.9	6,113	17.5	3,760	19.8	4,510	21.9	35,803	28.0	6,949	24.8	28,944	28.8	53	14.6	Stoves and ranges (other than electric) and warm-clothes, n. e. c.	
9,696	19.7	7,863	19.0	9,152	20.3	7,095	20.5	29,598	28.6	11,578	30.5	18,020	21.6	63	5.9	Paper goods, n. e. c.	
12,230	26.3	15,117	28.5	10,339	26.1	11,972	30.4	30,943	28.5	25,107	30.5	25,835	29.6	15	3.6	Boxes, paper, n. e. c.	
8,580	27.5	9,549	28.3	8,103	38.1	8,329	29.7	19,424	29.1	5,214	29.0	14,210	29.1	12	4.7	Dyeing and finishing cotton, rayon, and silk	
18,789	25.5	15,338	24.9	18,267	36.0	14,182	28.8	55,422	27.1	35,013	31.0	20,409	22.3	27	6.0	Boxing and other boxes	
7,032	19.1	12,096	21.3	8,321	19.9	10,414	23.5	42,645	23.0	14,899	19.6	27,746	23.3	15	2.7	Machine tools	
9,204	21.8	8,813	21.0	5,957	21.7	6,088	23.0	46,484	23.7	25,935	23.6	30,529	23.9	22	4.0	Confectiory	
8,398	13.3	9,651	13.8	7,300	13.4	7,382	15.0	40,913	20.7	41,455	24.6	29,458	15.7	52	4.4	Stamped and pressed metal products, including stamping and bequering	
17,630	22.2	17,974	21.1	15,832	22.3	13,843	20.9	49,579	22.3	26,037	25.5	28,412	23.7	17	3.3	Liquors, malt	
7,852	12.1	12,026	23.3	6,009	21.3	8,394	24.3	28,596	23.3	8,394	24.1	20,205	23.6	9	3.5	Silk manufactures	
7,122	15.8	8,918	17.3	8,298	15.9	8,915	17.4	51,827	19.9	29,435	19.2	22,392	21.1	16	1.2	Machine shops	
8,370	14.8	10,392	15.4	7,390	14.8	8,038	15.7	38,802	18.6	20,320	20.1	18,482	17.2	12	1.2	Planing-mill products (including general millwork), made in planing mills not connected with sawmills	
210 SMALL INDUSTRIES																	
16,834	99.5	18,668	99.4	15,333	99.6	16,579	99.7	33,669	99.3	8,563	99.0	25,046	99.3	14	70.0	Typewriters and parts	
91.5	98.9	98.5	98.9	92.3	98.9	92.3	98.9	96.8	98.8	2.37	96.0	96.2	8	86.7	Oil, essential		
2,184	84.4	2,750	88.2	2,001	86.4	2,222	91.9	46,499	97.3	14,364	95.9	32,135	98.0	9	94.6	Chevyrum	
11,811	99.5	12,811	99.5	11,811	99.5	12,811	99.5	11,811	99.5	11,811	99.5	11,811	99.5	11,811	99.5	11,811	99.5

TABLE II. — *Concentration in manufacturing industry*

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wage and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.		Value added by manufacturer		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	9 amount	Percent of industry	Number	Percent of industry
210 SMALL INDUSTRIES—Continued																	
6002	Amputation and related products Cannu and decorative, not done in petries.	5,801	91.8	5,988	80.7	5,207	93.0	4,794	93.6	24,136	91.7	9,580	93.9	14,556	90.4	7	53.8
1609	Combs and hairpins, other than metal and rubber.	242	87.7	246	89.5	215	90.3	177	91.7	622	88.1	281	89.2	341	87.2	4	36.9
623	Oil, cake, and meal, linseed.	2,273	87.6	2,760	87.3	2,092	89.0	2,374	89.5	52,978	87.9	42,938	88.0	10,040	87.6	17	68.0
612	Drug grinding.	582	82.2	852	83.4	491	83.2	471	79.7	5,195	87.8	2,983	88.3	2,212	87.2	4	14.5
1010	Graphite, ground and refined.	303	93.5	340	92.9	247	96.5	250	95.8	1,834	86.4	773	82.1	3,811	87.7	4	14.5
1105	Files.	2,671	83.0	3,159	82.9	2,156	84.3	2,004	85.1	7,879	85.8	1,917	85.8	5,962	85.6	6	27.3
605	Rhine.	58	59.2	125	78.1	34	58.6	41	74.5	776	85.1	224	78.3	552	88.2	6	40.0
1115	Safes and vaults.	806	84.4	1,087	81.9	685	84.7	682	85.3	2,808	84.8	992	82.4	1,816	86.1	4	28.6
619	INK, writing.	433	83.5	589	83.0	322	85.4	320	84.2	2,808	83.0	1,135	80.2	1,073	85.1	1	18.2
613	Explosives.	4,256	80.6	6,024	80.7	3,755	82.1	4,776	84.6	33,531	82.0	13,802	81.7	19,159	82.2	37	50.0
1106	Firearms.	4,296	78.6	5,534	79.9	3,808	78.4	4,182	81.5	10,670	81.9	2,680	79.1	7,990	82.0	6	27.0
801	Boots and shoes, rubber.	14,893	76.7	15,094	79.1	13,162	76.3	12,763	78.8	43,498	81.8	16,912	81.6	26,886	82.6	6	50.3
222	Asphalted felt-base floor covering; linoleum.	5,834	84.9	7,791	83.3	3,479	85.5	6,341	85.5	1,753	74.0	18,941	81.1	3,811	87.7	9	44.5
606	Bone black, carbon black, and lampblack.	1,569	76.9	1,905	78.5	1,113	77.3	1,541	79.7	12,000	81.0	4,088	76.7	7,912	83.5	41	74.5
113	Corn syrup, corn sugar, corn oil, and starch.	6,108	71.6	8,813	74.2	5,156	70.3	6,113	72.8	82,079	79.2	51,780	78.0	27,219	81.8	16	44.4
610	Compressed and liquefied gases.	4,350	76.4	5,880	72.1	2,948	77.8	3,343	75.8	33,279	79.2	8,878	79.9	24,401	79.3	243	73.6
124	Oleomarshine, not made in meat-packing establishments.	1,241	82.1	1,611	81.0	975	82.9	1,105	84.8	25,615	79.1	18,127	77.8	7,988	82.2	6	42.8
1312	Sewing machines and attachments.	7,135	82.0	9,334	80.6	6,288	83.7	7,696	83.9	17,857	78.9	4,900	76.9	12,057	72.5	5	12.8
1636	Photographic apparatus and materials and projection apparatus.	11,885	76.9	18,003	77.7	9,452	78.8	12,690	80.1	57,628	77.9	13,965	52.3	43,963	91.9	5	5.9
1206	Fire extinguishers, chemical.	856	77.4	1,166	79.5	642	79.7	800	82.9	4,121	77.1	1,883	76.2	2,238	76.0	4	10.6
307	Cork products.	2,553	75.8	2,638	74.9	2,357	77.1	2,402	77.9	10,755	76.9	5,338	77.5	5,717	76.3	7	20.0
1022	Gypsum products.	2,642	67.8	3,001	69.5	2,340	69.2	2,121	70.3	20,004	70.1	6,380	71.6	13,618	78.4	34	47.2
1201	Aluminum products.	16,911	76.6	19,418	75.7	14,019	76.9	15,732	77.4	79,036	76.0	44,946	79.9	34,004	77.9	10	35.9
1208	Gum leaf and foil.	459	73.1	400	73.5	406	72.9	295	73.2	1,347	75.5	713	74.3	654	70.7	5	18.5
1641	Salt fountains and accessories.	1,021	69.1	1,632	70.1	774	70.0	1,050	73.1	6,074	74.0	3,106	75.2	2,974	72.8	8	16.7
631	Soup.	10,725	63.3	13,800	61.6	9,042	65.6	10,468	68.2	175,870	73.5	104,321	73.5	53,341	73.5	18	7.6
1405	Cars, electric and steam railroad.	15,770	64.2	20,019	64.1	13,748	64.1	16,219	63.0	72,999	71.7	45,031	73.9	34,367	73.9	34	36.9
1634	Pens, fountain and stylographic pen points, gold, steel, brass.	2,812	61.6	2,819	59.7	2,311	61.1	2,092	61.0	12,595	70.4	3,690	63.8	8,905	73.6	4	7.8
312	Matches.	3,630	66.1	3,680	67.0	3,351	66.1	3,183	67.8	21,400	70.3	14,039	73.7	7,391	64.6	9	37.5
131	Sugar refining, cane.	9,813	64.3	11,921	69.1	8,362	64.5	9,719	70.1	247,288	69.6	161,848	67.9	43,529	67.9	8	7.3
120	Shortenings, vegetable cooking oils, and salad oils.	3,919	66.5	4,459	65.5	3,207	66.2	3,129	66.5	146,797	69.0	123,574	69.1	23,223	66.8	24	50.0
129	Sugar, beet.	6,512	60.3	8,152	63.1	5,470	59.3	6,081	65.1	65,447	68.8	49,190	68.1	16,257	67.7	42	54.5
109	Cereal preparations.	5,676	61.7	7,295	63.3	5,015	63.6	5,819	68.3	99,910	68.1	56,830	68.4	43,529	67.9	8	7.3
100	Chocolate and cocoa products, not includ- ing confectionery.	6,008	64.0	6,416	62.2	5,553	64.6	5,175	64.7	63,058	67.8	45,574	69.1	17,184	64.5	4	9.1
1021	Abrasive wheels, stones, paper, cloth, and related products.	5,800	63.3	8,690	67.9	4,277	63.1	5,913	71.2	36,280	67.4	12,545	60.4	33,765	71.7	6	6.4
1645	Surgical and orthopedic appliances and related products.	4,697	50.3	5,112	50.3	3,591	50.6	3,116	49.6	41,552	63.3	27,327	75.7	14,225	55.4	9	2.9
308	Excelsior.	499	51.6	490	52.4	436	52.5	320	60.1	1,638	67.0	337	61.8	1,001	70.9	9	18.8
404	Cord cutting and designing.	1,640	46.8	1,946	49.4	1,107	47.7	1,327	53.7	11,384	66.1	5,101	68.9	6,009	67.9	8	7.3
1110	Blast-furnace products.	9,555	57.1	13,415	59.2	8,844	55.2	11,180	59.1	247,203	66.0	195,882	65.2	51,321	69.3	29	40.0
1209	Gold, silver, and platinum, refining and alloying.	677	44.7	1,173	44.3	467	49.6	615	49.6	50,763	65.1	47,925	66.8	2,838	45.3	5	5.7
1218	Smelting and refining, zinc.	5,393	55.7	7,396	59.0	4,558	51.9	5,924	57.5	44,225	64.0	28,384	65.1	15,841	61.9	10	38.5
1647	Tobacco (chewing and smoking) and snuff.	5,041	51.0	5,189	49.7	5,229	51.9	4,872	50.1	80,023	63.5	58,992	65.6	27,031	59.4	10	8.7
1116	Saws.	2,868	69.0	3,415	63.6	2,417	70.6	2,627	70.1	8,653	63.1	2,597	61.9	9,086	64.0	9	11.0
1211	Needles, pins, hooks and eyes, stilet and snap fasteners.	7,526	64.9	7,881	63.2	6,608	65.4	6,258	66.0	20,894	64.4	5,109	58.3	15,395	55.1	5	10.6
1018	Sam-line break.	124	46.1	115	54.1	110	48.5	114	56.8	413	63.1	185	68.5	228	59.2	4	19.0
1001	Asbestos, other than steam packing and pipe and boiler covering.	7,555	68.7	8,113	67.8	6,715	69.8	6,197	69.9	24,089	63.1	10,840	63.1	13,259	63.1	14	20.5
1631	Optical goods.	7,699	63.7	10,137	68.2	5,919	61.2	6,962	67.1	20,939	62.3	5,710	51.6	15,229	67.6	7	7.7
1637	Pipes (tobacco).	1,143	39.1	1,728	63.3	1,345	60.0	1,599	65.7	3,844	62.2	1,093	59.5	3,751	65.6	5	17.7
503	Engraving, chasing, etching, and die- sinking.	1,096	63.6	2,088	59.7	1,426	64.8	1,511	61.7	4,706	62.2	2,400	77.9	2,696	53.7	4	4.1
463	Cardboard, not made in paper mills.	553	69.2	760	69.8	448	71.3	482	75.2	2,288	61.9	1,215	62.5	1,073	61.4	4	25.0
2651	Felt goods, except woven felts.	2,212	55.7	2,413	54.7	2,032	57.4	2,015	58.6	14,510	61.3	8,090	59.9	6,440	63.1	9	22.2
407	Candles.	408	52.0	618	57.1	304	51.1	427	54.6	2,862	61.1	1,466	61.1	1,426	61.1	4	17.1
1100	Motorcycles, bicycles, and parts.	3,240	56.9	3,808	58.9	2,902	57.0	3,147	60.4	13,990	60.6	7,826	61.2	6,154	59.9	6	26.1
630	Salt.	2,619	47.2	3,275	50.9	2,352	47.3	2,588	46.0	17,920	60.3	6,113	68.7	3,617	43.6	15	8.3
1222	Wardrobe cases.	1,415	61.1	1,934	63.0	1,198	59.4	1,494	62.9	4,069	58.4	1,507	51.6	2,592	60.7	4	13.8
220	Artificial leather; oil cloth.	2,369	55.0	3,072	54.8	2,031	55.6	2,461	58.6	19,814	57.7	13,234	57.1	6,580	59.1	7	21.2
603	Baking powder, yeast, and other leavening compounds.	2,133	63.5	4,285	66.8	1,690	63.4	2,054	69.1	18,478	57.1	7,967	54.7	10,591	59.0	11	25.9
1629	Musical instruments; organs.	404	53.4	491	51.3	337	54.9	338	55.3	968	57.0	308	53.5	660	58.8	4	14.3
1213	Silverware and plated ware.	5,980	50.4	6,879	48.3	5,362	50.6	5,033	50.8	24,524	56.6	7,296	47.9	17,228	48.1	9	6.3
1315	Washing machines, wringers, driers, iron- ing machines.	5,019	48.9	6,352	51.1	4,288	49.1	5,307	53.9	34,936	56.0	20,639	55.8	14,297	56.2	6	14.0
1016	Mirrors and other glass products made of purchased glass.	3,361	27.4	4,354	31.2	3,163	29.6	3,911	35.9	38,095	55.4	15,195	32.1	22,890	57.9	5	5.9
2173	Suspenders,arters, and other elastic woven products.	1,424	45.0	1,372	48.5	1,209	44.5	888	43.4	8,034	54.8	4,368	51.4	3,666	59.5	1	5.4
1311	Seals and balances.	1,480	45.2	1,989	47.4	1,076	43.6	1,178	44.7	7,341	51.8	1,921	50.7	5,420	56.5	5	8.9
302	Wallboard and plaster, except gypsum.	2,972	55.7	2,684	48.1	2,066	57.7	2,103	53.4	12,878	51.0	3,949	49.9	9,938	60.1	5	4.0
1401	Aircraft and parts.	7,131	47.8	11,280	52.5	5,436	47.8	8,211	53.2	24,455	51.9	7,081	54.8	16,734	53.5	8	10.6
1111	Spring, steel, except wire.	1,460	40.6	1,969	42.7	1,357	45.1	1,674	46.9	9,774	53.6	6,640	46.1	3,617	43.6	15	8.3
633	Wood distillation and charcoal manufacture.	2,050	47.1	1,961	52.2	1,776	46.7	1,443	51.3	5,555	53.5	3,693	46.2	4,892	60.7	4	13.8
1204	Collapsible tubes.	1,000	48.6	1,108	51.9	793	49.6	723	45.4	4,493	52.8	2,636	53.1	1,857	52.5	4	25.0
615	Fireworks.	923	49.6	1,135	55.1	792	49.9	725	45.2	4,493	52.8	2,636	53.1	1,857	52.5	4	25.0
1654	Wood pulping.	406	42.7	507	46.0	377	43.5	304	51.7	6,506	52.5	5,324	59.1	3,182	46.0	10	25.9

For footnotes, see end of table.

tries, 1935, based on value of products—Continued

sands of dollars]

Largest eight producers														Industry number	
Number	Persons employed		Wages and salaries		Wages		Value of product		Cost of materials, etc.		Value added by manufacture		Number of establishments		
	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number		Percent of industry
210 SMALL INDUSTRIES—Continued															
6,320	100.0	6,676	100.0	5,559	100.0	5,121	100.0	26,307	100.0	10,200	100.0	16,167	100.0	13	100.0
278	87.1	284	88.8	246	88.5	197	87.9	1,132	89.3	786	90.9	546	87.8	8	42.1
265	96.0	268	97.5	229	96.2	189	97.9	685	97.0	310	98.4	375	95.0	8	72.8
2,476	95.5	3,030	95.8	2,247	95.6	2,547	99.1	58,292	97.2	47,411	97.1	11,181	97.6	21	84.0
354	13.4	440	14.2	256	9.4	256	10.0	5,119	96.9	3,275	96.9	2,444	96.3	12	57.1
4,324	100.0	420	100.0	256	100.0	261	100.0	2,122	100.0	942	100.0	1,180	100.0	9	100.0
3,089	94.4	3,612	94.8	2,759	94.7	2,912	95.5	8,713	94.9	2,112	94.6	6,601	95.0	10	147.5
1,098	100.0	150	100.0	58	100.0	55	100.0	912	100.0	286	100.0	628	100.0	15	465.0
1,021	96.3	1,234	96.4	740	96.4	770	96.3	3,250	97.5	1,172	97.3	2,658	97.6	8	57.2
483	93.2	697	94.0	355	94.2	357	93.9	3,167	93.6	1,320	93.3	1,847	93.9	8	36.4
4,790	96.7	6,797	91.1	4,478	91.4	5,251	93.4	37,845	93.1	15,807	93.0	22,028	93.1	43	58.1
5,044	92.3	6,041	91.8	4,498	92.6	5,105	92.9	12,037	92.4	3,163	91.4	8,871	92.5	10	45.5
19,377	100.0	19,837	100.0	17,246	100.0	16,113	100.0	53,162	100.0	29,750	100.0	32,432	100.0	12	109.0
6,885	100.0	9,350	100.0	6,410	100.0	8,105	100.0	52,398	100.0	23,912	100.0	28,456	100.0	16	109.0
1,829	99.7	2,185	90.0	1,648	90.2	1,702	91.0	13,645	92.1	4,746	90.0	8,899	93.9	46	8.6
8,002	92.9	11,130	93.7	6,807	92.8	7,934	94.4	98,490	97.0	66,608	94.8	31,881	95.5	20	55.6
4,767	87.8	6,596	80.9	3,215	84.9	3,697	82.9	36,553	87.1	6,758	88.8	26,795	87.1	26	80.0
1,418	93.8	1,875	94.1	1,111	94.1	1,238	95.0	31,110	96.0	22,298	95.7	8,812	96.7	10	71.1
8,088	90.7	10,810	93.4	7,096	93.3	8,457	93.4	26,471	90.4	5,396	89.5	14,075	91.7	9	21.1
13,226	85.8	20,096	86.7	10,370	86.4	13,921	88.1	62,821	84.9	15,325	78.6	47,496	99.3	15	172.7
943	75.1	1,289	87.9	709	88.0	874	90.6	4,664	87.3	2,110	88.4	2,534	89.0	8	32.0
2,956	88.3	3,050	87.4	2,711	89.4	2,185	89.5	12,432	89.2	6,442	91.8	6,170	88.6	11	32.4
3,101	79.6	3,536	78.3	2,748	81.3	2,833	82.2	22,723	86.4	7,623	87.5	15,100	89.9	42	58.3
18,330	83.0	21,139	82.4	16,115	83.6	17,103	84.1	87,000	81.7	49,215	82.2	37,815	82.9	29	18.3
556	88.5	483	88.8	492	88.3	353	87.6	1,559	87.1	830	88.5	729	88.5	9	33.3
1,101	78.6	1,829	78.6	867	79.1	1,146	79.8	6,603	81.4	3,341	81.0	3,292	79.8	12	20.5
12,368	72.5	16,173	72.2	10,394	74.7	12,038	78.5	198,801	81.1	114,921	82.4	83,885	84.1	24	101.0
18,928	77.1	24,317	76.6	16,067	77.7	20,059	77.9	84,473	81.1	53,792	82.2	30,081	79.0	19	100.0
3,480	76.2	3,657	76.7	2,801	75.7	2,646	77.2	14,516	82.8	4,303	74.4	10,513	86.9	8	15.6
4,797	87.3	4,755	86.6	4,478	88.2	4,152	88.5	27,759	91.3	17,646	92.7	10,443	89.0	15	62.5
12,830	84.1	15,001	87.3	11,669	83.9	12,158	87.4	83,424	88.3	295,772	88.0	37,359	91.4	17	177.8
4,900	83.1	5,626	82.7	3,997	82.5	3,880	82.4	182,643	85.9	153,630	86.3	29,013	83.1	31	64.6
9,181	85.0	10,966	87.0	7,844	85.0	8,201	87.8	85,081	80.4	64,082	90.1	20,969	87.4	62	80.0
6,851	74.4	8,706	75.5	6,085	77.1	6,187	81.7	120,562	82.2	65,074	78.9	55,598	80.4	15	13.3
7,243	77.2	7,763	74.9	6,458	77.9	6,136	77.0	72,144	77.5	52,026	78.3	29,118	75.5	8	18.2
6,048	69.6	9,114	73.5	4,712	69.5	6,407	77.1	40,014	74.3	14,248	68.7	25,766	77.8	10	10.6
5,456	58.4	6,233	57.9	4,207	59.3	3,638	57.9	46,388	75.1	30,044	83.2	16,344	63.7	15	4.9
564	62.1	480	71.1	515	62.0	374	70.3	1,867	76.4	741	71.9	1,126	79.9	13	27.1
2,167	61.9	2,609	64.9	1,829	62.0	1,919	67.4	13,377	77.7	6,168	80.1	7,269	75.7	10	13.2
12,671	72.3	16,956	74.6	11,012	72.6	11,106	74.9	310,230	82.8	250,681	83.4	59,539	80.4	10	55.5
891	58.8	1,467	55.4	619	61.1	768	58.3	61,955	79.4	38,414	81.4	3,341	56.5	9	10.2
7,653	79.1	10,193	81.6	6,982	79.0	8,386	81.3	56,821	82.2	35,114	82.9	20,767	81.0	15	57.7
8,067	73.0	7,665	73.4	7,412	73.6	5,929	77.7	114,197	84.3	76,276	84.8	57,921	83.3	16	13.9
3,186	76.7	3,961	75.6	2,673	78.0	2,923	78.3	10,415	76.3	3,145	76.2	7,428	76.3	19	18.3
8,189	72.5	8,958	72.0	7,311	72.4	6,955	73.3	25,018	71.2	6,582	70.9	18,436	78.3	9	18.0
1,888	69.9	1,998	73.9	164	72.2	148	74.4	518	79.2	222	82.2	297	79.9	8	40.0
8,859	80.6	9,430	78.8	7,920	82.5	7,585	81.6	29,921	78.4	13,692	79.6	16,259	77.4	19	23.5
8,473	71.9	11,195	75.3	6,808	70.4	7,792	75.4	23,739	70.7	6,818	61.6	16,929	75.1	13	33.0
1,896	76.8	2,261	82.8	1,720	76.8	1,798	76.3	5,646	76.7	1,512	77.7	3,313	87.5	9	103.3
2,021	75.8	2,534	72.4	1,703	77.4	1,798	73.4	4,773	75.1	2,371	87.9	3,342	68.5	8	8.0
689	86.2	972	83.3	559	85.8	565	88.1	3,296	89.2	1,765	90.7	1,531	87.6	9	36.2
3,071	77.3	3,372	76.5	2,813	78.7	2,728	73.3	19,163	81.0	10,759	79.7	8,434	82.7	14	37.0
4,697	77.4	870	81.1	553	77.6	485	81.0	3,895	82.3	1,936	80.7	1,959	85.9	8	34.8
4,773	73.3	5,311	80.9	3,912	76.8	4,258	81.7	20,780	80.1	12,117	94.6	8,672	84.4	10	43.5
3,719	67.0	4,203	65.7	3,348	67.3	3,295	67.5	23,254	78.2	8,309	76.0	14,915	79.5	20	41.7
2,030	85.9	2,631	85.7	1,734	84.0	2,024	85.9	25,872	75.4	17,819	76.2	8,053	72.3	20	27.6
3,712	79.3	4,083	72.9	2,737	75.0	3,218	76.6	25,872	75.4	17,819	76.9	8,053	72.3	11	33.3
2,186	80.8	5,122	81.0	2,181	81.8	3,519	82.3	29,806	82.9	11,935	82.9	14,871	82.9	15	32.6
593	78.3	721	79.6	489	79.6	490	80.2	1,516	77.5	448	77.8	808	77.3	8	28.6
7,411	62.5	8,610	60.5	6,392	62.7	6,805	61.4	29,484	68.0	9,329	61.2	20,158	71.6	13	9.1
7,922	72.1	10,163	80.6	6,795	77.7	8,127	82.5	94,726	79.7	29,567	79.9	20,159	79.9	11	26.8
4,202	34.3	5,213	37.3	3,969	36.6	4,574	42.0	41,065	59.8	16,683	57.2	24,412	61.7	14	2.6
1,895	59.8	1,795	63.4	1,620	59.6	1,170	59.8	9,921	67.7	5,519	65.0	4,402	71.4	8	10.8
2,051	62.7	2,735	65.2	1,504	60.9	1,659	63.9	6,758	72.9	2,578	68.1	7,180	74.8	9	16.1
3,892	71.1	3,787	68.3	3,427	74.2	2,958	75.1	16,716	70.1	5,442	69.6	11,274	75.8	9	7.3
9,851	60.0	15,362	71.5	7,418	65.2	10,883	73.1	33,068	72.8	10,127	72.3	22,881	73.9	14	13.1
2,237	62.2	2,834	61.5	2,045	63.0	2,375	66.6	12,967	71.1	8,337	77.3	4,430	61.6	16	11.8
2,680	62.1	2,616	66.9	2,367	62.2	1,917	68.1	10,805	68.2	4,963	65.0	5,862	73.3	11	18.3
1,685	75.8	1,842	79.9	1,526	79.3	1,427	81.5	6,749	79.4	3,973	80.0	2,776	78.8	19	59.0
1,410	75.8	1,558	75.6	1,234	77.7	1,017	77.7	4,972	76.1	2,007	76.2	2,965	76.5	20	18.5
721	75.8	930	75.1	662	76.1	777	79.7	9,759	78.7	7,452	82.7	2,967	68.0	8	17.0
Annumeration and related products.....															992
China fringe and decorating, not done in potteries.....															1065
Combs and hairpins, other than metal and rubber.....															8
Oil, cake, and meal, linseed.....															926
Drug grinding.....															612
Graphite, ground and refined.....															9
Glasses.....															147.5
Blind.....															15
Safe and vaults.....															57.2
Ink, writing.....															36.4
Explosives.....															63
Firearms.....															119
Boots and shoes, rubber.....															109.0
Asphalted-leat-base floor covering; linoleum.....															222
Bone black, carbon black, and lampblack.....															8
Corn syrup, corn sugar, corn oil, and starch.....															112
Compressed and liquefied gases.....															11
Oleomargarine, not made in meat-packing establishments.....															71.1
Sewing machines and attachments.....															141
Photographic apparatus and materials and projection apparatus.....															126
Fire extinguishers, chemical.....															32.0
Cork products.....															36
Gypsum products.....															42
Lithium products.....															29
Gold leaf and foil.....															33.3
Soda fountains and accessories.....															129
Soap.....															240.1
Cars, electric and steam railroad.....															10
Pens, fountain and stylographic; pen points, gold, steel, brass.....															163
Matches.....															31
Sugar refining, cane.....															67.8
Shortenings, vegetable cooking oil, and salad oils.....															129
Sugar, beet.....															62
Cereal preparations.....															106
Chocolate and cocoa products, not including confectionery.....															106
Abrasive wheels, stones, paper, cloth, and related products.....															102
Surgical and orthopedic appliances and related products.....															164
Excisor.....															27
Card cutting and designing.....															13
Blat-furniture products.....															110
Gold, silver, and platinum, refining and alloying.....</															

TABLE II.—Concentration in manufacturing industry

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. <sup>1</sup>		Value added by manufacture <sup>2</sup>			
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry		
210 SMALL INDUSTRIES—Continued																	
1603	Artists' materials.....	184	35.0	271	38.0	116	33.1	125	37.1	1,271	52.3	774	63.4	497	41.1	8	10.0
1614	Foundry supplies.....	173	29.9	291	31.6	124	31.0	174	39.8	3,392	52.0	1,858	53.9	1,534	49.9	5	10.0
1611	Dentists' equipment and supplies.....	2,292	51.1	2,914	49.6	1,889	53.7	2,010	55.4	11,847	51.6	8,533	42.0	1,014	57.9	9	9.0
133	Liquors, distilled.....	4,251	41.0	4,469	39.4	3,850	47.2	3,491	46.5	78,231	51.2	36,631	47.9	41,600	54.5	13	9.0
1610	Lasts and related products.....	835	47.8	1,190	46.4	731	43.9	950	49.7	2,827	51.2	716	49.1	2,111	52.0	13	13.1
1630	Musical instruments: pianos.....	2,435	53.0	2,611	53.2	2,195	53.4	2,170	53.0	6,477	51.1	2,242	40.0	4,235	50.7	4	11.1
319	Wood preserving.....	3,416	38.8	2,909	35.0	3,033	40.4	2,992	38.6	40,599	50.5	32,184	53.9	8,415	46.8	55	29.0
618	Ink, printing.....	1,546	40.2	2,357	38.0	1,066	42.4	1,419	44.8	16,919	49.0	10,162	54.7	6,757	42.4	42	22.0
1632	Paving materials, blocks (except brick and stone) and mixtures.....	1,061	39.9	1,527	42.8	989	44.3	1,335	53.1	8,754	48.9	5,636	50.5	3,118	47.1	31	29.5
701	Coke-oven products.....	7,682	41.7	10,451	40.6	6,870	41.2	8,543	39.6	116,403	48.8	90,908	50.4	25,555	43.9	20	22.7
1617	Hair work.....	231	37.4	332	42.8	189	37.7	452	34.8	1,326	48.5	447	43.0	829	51.8	4	9.3
1113	Nails, spikes, etc.....	1,290	51.5	1,570	50.2	1,160	53.2	1,263	54.4	4,669	48.3	2,015	46.6	2,654	49.8	6	10.9
115	Flavoring extracts, flavoring sirups, and related products.....	469	10.9	837	12.5	320	11.0	360	14.6	32,399	47.7	10,809	37.0	21,560	55.7	12	2.9
1128	Wrought pipe, welded and heavy riveted	4,679	39.7	6,054	41.1	4,375	40.8	5,302	45.0	34,991	47.4	20,255	48.2	14,736	46.3	8	8.7
1403	Carriages and sleds, children's.....	2,680	49.1	2,797	51.7	2,491	50.6	2,471	50.6	7,302	47.0	3,473	46.8	3,829	47.3	6	10.0
1644	Steam and other packing, pipe and boiler covering, and gaskets, n. e. c.	2,965	51.5	3,100	46.9	2,576	53.9	2,492	52.6	11,367	46.9	5,807	49.4	5,560	44.5	9	7.3
1403	Carriages, wagons, sleighs, and sleds.....	721	38.8	754	42.7	611	38.4	564	43.9	3,134	45.8	1,806	49.1	1,323	42.0	4	8.9
1644	Pencils, lead (including mechanical), and crayons.....	2,857	46.9	3,068	49.0	2,451	47.3	2,187	51.7	8,973	44.9	3,740	45.3	2,238	44.6	5	10.6
122	Milk.....	750	43.7	1,505	42.0	644	44.8	1,040	44.3	33,336	41.6	25,255	44.8	8,281	44.3	13	24.1
111	Condensed and evaporated milk.....	3,990	40.0	4,153	38.1	3,044	41.3	3,301	39.7	76,536	41.6	58,539	44.7	17,997	44.4	111	23.8
2171	Gloves and mittens, cloth or cloth and leather combined.....	3,408	46.0	2,185	41.6	3,781	46.9	2,011	44.8	8,323	43.9	4,631	45.0	3,692	42.7	22	19.2
1638	Roofing, built-up and roll: asphalt shingles; roof coatings.....	3,414	46.4	3,878	44.6	3,051	47.1	3,033	45.7	32,581	42.8	18,310	42.6	14,271	43.0	20	18.5
625	Oil not elsewhere classified.....	779	34.1	1,012	34.4	666	37.6	777	42.8	17,800	42.6	12,555	44.4	4,945	38.7	10	9.4
1217	Smelting and refining, nonferrous metals, n. e. c.	2,639	45.0	2,431	40.2	1,700	47.1	1,631	71.2	26,691	42.6	21,639	41.6	5,052	47.6	16	16.1
1102	Cast-iron pipe and fittings.....	4,759	33.5	4,037	31.8	4,571	33.8	3,365	32.6	16,056	42.4	6,665	45.0	9,391	40.7	12	16.9
136	Liquors, rectified or blended.....	2,974	41.6	2,324	34.5	2,860	48.6	2,135	47.2	41,873	42.2	20,532	36.2	21,341	50.3	6	2.3
1303	Boxes, clear, wooden and part wooden.....	1,254	35.7	1,017	40.0	1,211	38.2	803	40.1	2,591	42.1	780	35.0	1,811	46.0	11	15.2
1628	Musical instruments and parts and materials: piano and organ.....	1,378	39.1	1,454	43.9	1,074	37.5	1,298	43.1	3,762	41.5	967	35.3	2,799	44.2	4	4.3
627	Musical-instrument parts and materials: piano and organ.....	637	46.3	600	41.2	587	48.2	459	44.6	1,319	41.4	529	43.2	790	40.3	4	11.8
411	Wall paper.....	2,298	45.2	2,505	41.9	1,950	45.7	1,908	44.5	8,145	41.4	4,232	42.8	3,913	40.1	8	20.0
132	Beauty-shop findings and materials.....	611	19.7	927	24.0	553	20.0	693	25.4	6,988	40.8	5,317	48.5	1,671	26.9	9	5.5
1126	Vinegar and cider.....	500	39.5	606	40.3	435	40.2	432	43.1	3,440	40.4	2,054	43.2	1,386	36.9	26	20.8
1126	Wire drawn from purchased rods.....	8,761	36.2	11,592	37.7	8,135	37.8	9,402	40.5	51,262	40.2	28,396	41.1	22,866	38.8	15	17.0
901	Belling and packing, leather.....	966	51.8	1,014	25.3	859	36.4	791	31.4	8,581	39.9	4,451	40.3	3,930	39.4	6	3.2
1653	Beauty-shop equipment, except furniture	790	36.5	966	31.6	853	39.1	666	38.8	4,955	39.6	2,001	39.9	2,954	30.3	4	4.6
604	Blacking, stains, and dressings.....	581	26.7	773	23.7	417	31.4	419	28.6	7,027	39.2	3,393	40.5	3,634	38.1	5	5.0
127	Rice cleaning and polishing.....	1,023	39.2	993	37.3	800	39.5	1,483	36.6	17,018	38.6	12,488	36.5	4,530	45.8	16	23.5
208	Face goods.....	2,908	32.9	3,784	35.0	2,580	33.0	3,067	35.4	10,492	38.2	3,227	33.4	7,265	40.7	4	7.2
1202	Clocks, watches, etc., materials and parts except watchcases.....	7,515	37.0	8,931	37.7	6,905	38.3	7,172	39.2	23,058	37.7	9,635	42.7	13,423	34.7	8	10.5
1623	Lapidary work.....	68	33.5	116	39.3	60	39.3	93	46.2	771	37.6	535	43.2	296	29.1	4	6.6
616	Glue and gelatin.....	1,102	28.1	1,857	35.7	1,325	40.8	1,430	40.5	10,494	37.3	5,154	44.2	5,340	40.9	14	18.9
2109	Fabricated textile products, n. e. c.	5,432	26.0	5,288	25.2	4,791	26.9	3,788	26.2	54,992	37.2	44,034	34.2	10,958	26.7	4	4.6
1108	Galvanizing and other coating.....	577	41.1	747	39.6	526	43.8	477	37.6	1,926	37.1	630	31.5	1,296	40.6	4	6.2
1120	Steel barrels, kegs, and drums.....	2,898	41.7	3,218	42.2	2,646	45.9	2,667	45.3	12,829	37.0	7,455	35.4	5,374	39.5	7	10.9
1103	Cutlery (not including silver and plated cutlery) and edge tools.....	2,742	17.7	3,182	17.7	2,450	17.8	2,320	17.1	18,548	36.3	3,438	27.3	15,110	39.1	5	1.9
1642	Sporting and athletic goods, not including firearms or ammunition.....	3,837	34.0	4,020	33.4	3,336	34.5	3,191	35.4	12,536	36.0	6,484	39.1	6,052	33.1	10	5.1
1642	Stereotyping and electrotyping, not done in printing establishments.....	1,519	25.5	4,327	31.8	1,049	23.8	2,023	29.9	9,626	36.0	1,260	33.9	8,433	36.4	11	5.4
507	Carbon paper and inked ribbons.....	679	34.7	1,103	36.6	505	35.4	591	36.3	5,230	35.6	2,782	36.4	2,498	34.7	4	7.1
621	Mordants, paste, and other adhesives, except glue and rubber cement.....	128	26.9	226	30.5	79	29.6	92	31.8	1,293	35.6	497	30.2	796	40.0	4	6.1
1633	Fruitless, plumes, and manufactures thereof	139	20.6	155	25.4	121	21.1	99	23.1	578	35.1	300	49.1	278	26.9	4	5.5
128	Sausage, meat puddings, headcheese, etc.	2,963	27.4	3,103	22.5	2,707	29.5	2,588	25.7	45,707	35.1	39,530	38.0	8,377	23.9	131	16.2
1622	Jewelry and instrument cases.....	1,088	42.5	1,105	42.1	998	43.1	812	42.5	2,214	34.8	603	29.5	1,321	37.9	4	5.5
401	Bags, paper, exclusive of those made in paper mills.....	3,153	31.6	2,728	26.0	3,032	33.2	2,456	30.6	22,790	34.8	14,647	35.1	8,143	34.2	14	15.1
1019	Statuary and air goods (except concrete), factory product.....	1,203	20.3	291	26.6	135	18.8	183	22.8	969	34.6	158	23.7	841	37.8	4	3.8
1114	Plumbers' supplies, not including pipe or vitreous-china sanitary ware.....	7,297	31.8	8,381	31.2	6,654	33.1	7,365	34.5	23,939	34.3	10,095	31.7	13,844	36.2	10	4.0
1651	Window shades (textile and paper) and fixtures.....	1,010	27.3	1,132	27.6	840	28.0	700	25.8	6,920	34.0	4,626	37.9	2,294	28.3	21	6.6
632	Tanning materials, natural dyesuffs, mordants, etc.	1,086	30.5	1,379	24.4	855	32.3	818	31.1	11,417	33.9	7,036	35.7	4,381	31.4	20	13.0
504	Engraving, steel, copper-plate, and wood, and plate printing.....	1,615	24.3	2,969	32.0	1,372	25.9	2,274	34.9	6,820	33.9	1,165	25.4	5,655	36.4	6	1.6
1107	Food preparations not elsewhere classified	3,401	19.6	3,154	16.3	3,108	22.0	2,639	21.8	75,135	33.7	65,526	41.3	9,609	15.0	167	16.2
1107	Bolts, nuts, washers, and rivets.....	7,738	32.5	6,069	33.5	4,147	33.2	4,614	34.5	19,255	33.6	8,440	33.0	11,810	35.1	15	10.9
430	Envelopes.....	3,757	35.2	4,422	33.2	3,230	35.7	3,196	35.2	14,693	33.6	7,847	37.8	6,816	29.8	17	10.3
130	Sugar, cane, not including products of refineries.....	8,065	24.1	6,665	26.8	6,662	25.5	430	28.1	8,811	33.5	6,965	33.2	2,746	34.4	9	12.2
1104	Doors, shutters, and window sash and frames, molding, and trim, metal.....	1,692	28.3	2,213	28.5	1,315	29.0	1,458	28.6	7,564	33.3	3,407	34.2	4,157	32.5	7	5.2
1605	Brushes, other than rubber.....	1,682	20.5	2,054	22.3	1,291	19.0	1,117	18.6	14,018	33.3	4,105	22.1	9,913	39.6	6	2.4
622	Oil, cake, and meal, cottonseed.....	4,835	31.5	3,244	30.0	4,272	32.3	1,959	33.1	61,849	32.9	52,989	33.0	8,860	32.4	108	10.6
118	Ice cream.....	6,400	26.6	9,005	28.4	4,696	27.1	5,624	29.4	68,587	32.7	30,319	30.0	38,268	33.3	165	6.6

For footnotes, see end of table.



tries, 1935, based on value of products—Continued

sands of dollars]

Large eight producers														Industry		Industry number	
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. <sup>1</sup>		Value added by manufacturer <sup>2</sup>					
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 SMALL INDUSTRIES—Continued																	
236	56.3	446	62.6	189	54.0	191	56.7	1,634	67.2	876	71.7	758	62.7	8	17.0	Artists' materials.....	1605
334	57.8	549	53.7	244	61.0	292	65.5	4,675	71.7	2,377	69.0	2,298	74.8	11	23.9	Foundry supplies.....	1614
2,739	61.1	3,568	60.8	2,185	62.1	2,286	63.0	15,519	67.6	5,838	64.0	6,681	69.9	11	12.6	Dentists' equipment and supplies.....	1611
6,250	64.9	6,832	60.3	5,574	68.4	5,759	68.9	109,263	71.4	53,329	69.7	55,874	73.1	19	14.5	Liquors, distilled.....	133
1,107	63.4	1,660	61.7	856	63.9	1,257	65.8	3,714	67.7	952	65.3	2,762	68.0	17	35.4	Lasts and related products.....	310
3,364	73.2	3,644	74.2	3,009	73.2	3,076	75.2	9,617	75.8	3,988	71.2	5,629	79.1	8	22.2	Musical instruments: pianos.....	1630
4,629	47.1	3,785	45.6	4,374	48.7	3,279	49.4	48,373	60.2	38,376	64.2	9,997	48.5	65	35.1	Wool preserving.....	319
1,847	55.2	3,153	51.5	1,980	58.2	1,936	59.6	21,034	60.9	12,356	66.5	8,678	54.4	49	25.7	Ink, printing.....	618
1,502	56.5	2,136	59.8	1,367	61.3	1,738	69.1	11,358	63.5	6,545	65.6	4,813	60.9	36	27.3	Paving materials, blocks (except brick and stone) and mixtures.....	1632
11,269	60.8	15,644	60.8	10,064	60.5	12,873	60.1	162,543	68.1	124,548	69.0	37,995	65.3	34	38.6	Coke-oven products.....	701
394	58.9	480	61.9	250	59.6	242	55.3	1,768	64.6	602	57.9	1,166	68.7	8	18.8	Hair work.....	1617
1,591	63.5	1,995	65.4	1,411	64.1	1,576	67.9	6,266	64.9	2,735	63.2	3,531	66.3	10	23.3	Nails, spikes, etc.....	1113
963	59.8	1,353	20.2	623	21.5	338	20.3	36,629	54.0	12,610	43.2	24,919	62.1	16	3.9	Flavoring extracts, flavoring syrups, and related products.....	115
6,808	57.7	8,995	61.1	6,232	58.1	7,459	62.3	47,853	64.8	26,860	64.0	20,993	65.9	13	27.1	Wrought pipe, welded and heavy riveted.....	1128
3,428	62.8	3,581	66.2	3,179	64.6	3,041	69.7	9,979	64.9	4,742	63.9	5,237	64.7	10	18.2	Carnages and sleds, children's.....	1493
3,752	65.7	4,221	59.8	3,369	69.3	3,219	67.9	15,159	62.5	7,886	67.1	7,273	58.2	14	11.3	Steam and other packing, pipe and boiler covering, and gaskets, n. e. c.....	1644
1,121	60.3	1,416	63.2	960	60.4	808	62.9	4,621	67.5	2,485	67.5	2,136	67.6	8	17.8	Carriages, wagons, sleds, and sleds.....	1404
3,982	65.3	4,169	70.6	3,338	64.4	2,972	70.2	13,355	66.8	5,374	65.1	7,981	68.0	9	19.1	Pencils, lead (including mechanical), and crayons.....	1633
1,042	59.7	2,188	61.1	878	61.0	1,412	60.1	49,208	65.5	37,713	66.9	11,495	61.1	18	33.3	Malt.....	122
1,912	60.8	6,024	55.2	5,222	61.7	4,821	58.0	107,514	62.7	83,466	63.7	24,048	59.3	212	45.4	Condensed and evaporated milk.....	111
4,678	55.6	2,650	51.6	4,567	56.7	2,466	54.9	10,615	56.0	5,796	56.3	4,819	55.7	27	23.5	Gloves and mittens, cloth or cloth and leather combined.....	2171
4,993	67.8	5,787	66.6	4,544	70.1	4,758	71.3	31,929	68.2	29,992	69.8	21,937	66.1	29	26.8	Roofing, built-up and roll; asphalt shingles; roof coatings.....	1638
1,122	49.5	1,456	49.5	940	53.1	1,053	58.0	26,453	63.4	18,568	64.1	7,885	61.7	17	16.0	Oil not elsewhere classified.....	625
2,540	56.1	3,127	51.7	2,118	58.7	2,074	60.5	38,081	60.8	31,655	60.9	6,426	60.1	20	20.2	Smelting and refining, nonferrous metals, n. e. c.....	1217
7,994	54.8	7,041	55.5	7,420	58.1	7,450	58.3	23,839	64.8	9,291	62.8	14,568	63.1	21	29.6	Cast-iron pipe and fittings.....	1102
3,591	50.2	2,983	44.3	3,386	57.6	6,113	57.7	55,945	56.4	29,243	51.6	26,702	62.9	13	5.0	Liquors, rectified or blended.....	136
1,880	55.8	1,414	55.6	1,896	59.6	1,134	56.7	3,626	58.9	1,311	58.9	2,315	58.8	15	20.8	Boxes, cigar, wooden and part wooden.....	303
1,810	51.4	2,418	57.2	1,424	49.7	1,695	56.3	4,945	54.6	1,312	48.1	3,633	57.4	8	8.6	Musical instruments and parts and materials, n. e. c.....	1628
1,005	73.0	1,007	69.1	925	76.7	747	72.6	2,157	67.7	811	66.3	1,346	68.6	8	23.6	Musical-instrument parts and materials: piano and organ.....	1627
3,043	62.3	3,497	55.5	2,699	63.1	2,754	61.4	11,574	58.9	5,986	60.5	5,588	57.2	12	30.0	Wall paper.....	411
1,284	41.4	1,782	36.1	1,136	42.7	1,312	48.1	10,354	60.3	7,390	67.1	2,964	47.7	8	11.0	Jewelry's findings and materials.....	1224
691	52.2	853	56.7	568	54.8	589	58.8	4,838	56.8	2,830	59.5	2,008	53.4	33	26.1	Vinyl and other.....	132
11,914	49.2	15,527	50.5	10,685	51.0	13,201	51.0	68,849	54.0	37,178	54.3	31,671	53.8	29	22.7	Wire drawn from purchased rods.....	1126
1,390	45.8	1,354	39.2	1,210	51.5	1,176	40.7	11,483	53.4	6,153	53.1	5,348	53.6	10	5.3	Belt and packing, leather.....	901
1,375	51.7	1,456	47.7	1,183	54.3	968	49.2	7,418	59.2	2,823	56.3	4,595	61.7	9	9.8	Beauty-shop equipment, except furniture.....	1653
872	40.0	1,178	36.1	691	46.1	632	43.1	9,015	50.3	4,173	49.8	4,842	50.7	9	5.4	Blacking, stains, and dressings.....	694
1,325	59.8	1,330	49.9	1,038	51.3	978	51.7	28,278	52.8	17,719	51.8	5,559	56.2	21	30.9	Steel cleaning and polishing.....	137
4,452	56.2	6,106	59.5	4,350	55.4	4,912	56.6	16,308	59.5	5,329	54.1	11,136	62.4	9	16.1	Lace goods.....	208
13,819	68.1	14,794	65.5	12,464	69.1	12,291	67.2	36,141	59.1	13,679	60.7	22,462	58.1	12	15.8	Clocks, watches, etc., materials and parts except watchcases.....	1202
5	41.9	146	49.5	70	45.8	107	53.2	1,115	54.4	790	63.8	325	40.1	8	13.3	Lipatory work.....	1623
2,198	56.2	2,823	54.3	1,934	59.4	2,116	59.9	16,448	54.4	8,564	56.8	7,884	60.3	20	27.0	Glove and gelatin.....	616
6,698	32.0	6,398	30.5	5,971	33.5	6,414	32.2	70,354	47.7	56,886	53.3	13,498	33.0	41	5.0	Fabricated textile products, n. e. c.....	219
840	59.8	1,026	54.4	758	63.1	689	54.3	3,920	56.2	1,178	58.8	1,742	54.6	8	12.4	Galvanizing and other coating.....	1108
4,107	63.4	4,688	61.5	3,768	64.0	3,714	63.6	19,724	59.6	11,639	55.3	8,088	59.4	18	28.1	Steel barrels, kegs, and drums.....	1120
4,475	58.9	5,103	28.6	4,022	29.3	3,902	28.1	28,121	43.2	4,394	34.9	18,727	48.5	10	3.8	Cutlery (not including silver and plated cutlery) and edge tools.....	1103
5,085	45.0	5,404	44.9	4,402	43.5	4,211	46.7	16,439	47.2	7,921	47.8	8,518	46.6	15	7.7	Sporting and athletic goods, not including firearms or ammunition.....	1642
2,128	35.7	5,708	40.9	1,482	33.6	2,967	35.1	12,371	46.0	1,559	41.9	10,812	46.7	16	7.8	Stereotyping and electrotyping, not done in printing establishments.....	512
1,124	57.5	1,751	58.1	818	57.4	929	57.0	8,293	56.4	4,146	55.3	4,147	57.6	8	14.3	Carbon paper and inked ribbons.....	1607
209	43.9	348	47.0	121	43.3	140	48.4	1,976	54.4	885	53.8	1,091	54.9	8	12.2	Nuclear paste and other adhesives, except glue and rubber cement.....	621
242	35.9	258	42.2	209	36.5	167	36.5	776	47.2	359	58.8	417	40.3	8	11.0	Feathers, plumes, and manufactures thereof.....	1613
3,360	31.1	3,763	26.8	3,046	33.2	2,957	29.3	30,221	38.6	42,776	41.4	7,445	27.9	155	16.7	Sausage, meat puddings, headcheese, etc.....	128
1,841	57.8	1,563	50.6	1,346	58.3	1,164	58.8	3,353	55.5	1,297	53.9	2,296	56.5	8	11.1	Jewelry and instrument cases.....	1622
4,402	43.8	4,161	39.7	4,129	43.3	3,516	43.7	31,944	48.7	20,386	48.9	11,558	48.5	24	22.4	Bags, paper, exclusive of those made in paper mills.....	401
320	35.7	469	42.9	255	35.5	320	39.9	1,333	46.1	250	37.5	1,083	48.7	8	7.6	Statuary and art goods (except concrete), factory product.....	1019
9,871	43.0	11,217	41.8	8,894	44.2	9,600	45.0	34,144	45.1	13,362	42.0	20,782	47.5	16	6.3	Plumbers' supplies, not including pipe or vitreous-clinca sanitary ware.....	111
1,604	43.4	1,788	43.6	1,396	46.5	1,247	46.0	9,782	48.1	6,488	53.1	3,294	44.6	25	7.8	Window shades (textile and paper) and fixtures.....	1651
1,549	43.5	2,314	40.9	1,211	45.7	1,172	44.5	15,956	47.4	9,798	49.7	6,163	44.2	26	16.9	Tanning materials, natural dyesuffs, mordants, etc.....	632
2,175	32.7	3,657	39.0	1,829	34.5	2,739	42.0	8,048	40.0	1,437	31.3	6,611	42.6	10	2.6	Embossing, steel, copperplate, and wood and plate printing.....	594
4,783	27.6	4,750	24.6	4,249	30.1	3,646	30.1	37,543	43.8	80,391	50.7	17,152	26.7	146	18.1	Food preparations not elsewhere classified.....	117
7,179	33.4	9,836	54.1	6,870	54.9	7,601	56.8	27,718	48.3	14,360	49.5	13,358	47.1	19	13.9	Bolts, nuts, washers, and rivets.....	1101
4,694	44.0	3,551	41.7	4,045	44.8	4,008	44.4	18,626	42.7	9,728	46.9	8,898	38.4	25	15.1	Envelopes.....	405
1,430	57.7	946	41.9	1,094	37.2	835	44.8	12,852	47.1	8,537	46.7	8,848	48.2	16	21.6	Sugar, cane, not including products of refineries.....	130
2,777	46.4	3,352	45.5	2,132	47.0	2,368	45.3	11,148	49.0	4,769	47.9	6,379	49.9	12	9.0	Doors, shutters, and window sash and frames, excluding iron and steel.....	1104
3,047	37.2	3,533	38.4	2,436	36.6	2,298	36.8	20,347	48.3	7,077	38.1	13,270	52.5				

TABLE II.—Concentration in manufacturing indus

[Values in thou

Industry number	Industry	Largest four producers														Value added by manufacture <sup>2</sup>	Number of establishments
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. <sup>1</sup>					
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 SMALL INDUSTRIES—Continued																	
1325	Printers' machinery and equipment.....	3,846	29.7	6,016	29.3	3,027	30.6	4,372	32.2	16,752	32.5	2,814	21.6	13,938	36.2	6	2.5
1501	Railroad repair shops, electric.....	5,931	28.2	9,946	33.0	5,418	27.7	8,771	32.5	15,636	32.3	5,546	31.9	10,090	32.6	16	6.2
202	Boot and shoe cut stock and findings.....	4,523	21.3	4,787	22.5	4,045	22.1	4,293	25.4	35,910	32.2	27,497	36.0	8,533	24.0	23	4.6
272	Handkerchiefs.....	1,558	29.6	1,207	29.4	1,486	30.4	998	31.1	5,872	31.8	3,957	38.9	2,175	24.3	5	5.6
302	Cordage and twine; jute goods; linen goods.....	5,978	29.3	5,020	27.5	5,349	28.7	3,755	26.7	21,521	31.3	9,945	28.8	11,576	33.7	13	8.8
1249	Umbrellas, parasols, and canes.....	914	37.6	813	36.7	854	39.0	638	37.3	3,176	30.9	1,641	26.7	1,475	37.4	4	4.8
126	Poultry dressing and packing, wholesale.....	3,069	32.7	2,056	28.8	2,710	33.5	1,516	29.0	28,313	30.5	24,051	31.4	4,262	29.4	13	24.0
1646	Theatrical scenery and stage equipment.....	82	20.8	212	30.5	60	21.5	136	31.1	580	29.9	245	32.7	335	28.2	4	8.3
1002	Cement.....	6,903	29.4	7,233	26.3	6,188	29.9	5,731	27.4	36,053	29.9	12,540	29.2	23,513	30.4	37	24.2
1313	Textile machinery and parts.....	7,871	34.7	10,544	35.5	6,632	34.8	7,857	37.0	20,224	29.4	7,129	30.9	13,095	28.6	5	1.1
1324	Cranes and derricking, excavating, and road-building machinery.....	4,219	29.4	6,038	31.1	3,554	31.0	4,106	32.7	18,420	29.3	7,820	27.2	10,600	31.1	8	6.3
617	Grease and tallow, not including lubricating greases.....	1,772	31.0	2,249	29.2	1,416	29.8	1,582	29.4	11,424	28.7	5,827	26.3	5,597	31.7	18	6.9
1620	Instruments and apparatus, professional, scientific, commercial, and industrial.....	5,558	27.8	7,784	27.9	4,404	29.0	5,196	29.6	19,251	28.2	5,931	28.9	13,320	27.9	10	3.6
609	Cleaning and polishing preparations.....	852	19.2	1,393	20.5	566	20.0	770	25.4	11,808	28.0	4,750	27.5	7,118	28.3	4	1.0
315	Synthetic-resin, cellulose-plastic, etc., n. e. c.....	3,371	23.5	3,730	24.2	3,053	23.8	3,115	25.8	13,865	27.6	6,370	30.5	7,495	25.8	14	9.2
1616	Wax, dressed and dyed.....	2,886	34.0	3,046	31.7	2,301	35.8	2,891	34.3	5,818	27.3	1,848	28.4	3,970	26.8	12	7.2
318	Window and door screens and weather strip.....	590	25.3	605	27.6	528	28.2	399	22.9	2,334	26.9	1,133	29.1	1,181	25.9	6	4.3
104	Canned and cured fish, crabs, shrimps, oysters, and clams.....	2,775	19.4	1,728	20.9	2,618	19.6	1,306	20.7	16,310	26.9	9,390	24.0	6,920	32.2	8	2.9
135	Liquors, vinous.....	617	19.8	632	17.5	518	22.2	384	18.2	9,777	26.8	3,704	24.2	6,073	28.7	7	2.2
704	Lubricating greases, not made in petroleum refineries.....	607	20.7	927	18.7	410	21.2	437	20.0	9,779	26.0	5,643	27.2	3,736	24.4	7	3.9
909	Saddlery, harness, and whips.....	668	22.9	943	24.3	795	24.6	759	26.0	3,465	26.0	2,171	28.1	1,294	23.0	4	2.5
614	Fertilizers.....	6,482	31.3	3,273	31.0	5,734	32.9	3,882	35.1	36,356	29.9	24,018	25.7	12,338	26.2	104	15.7
306	Cooperage.....	2,133	20.0	2,008	20.4	2,025	20.5	1,770	22.2	12,066	25.9	8,164	27.3	3,902	23.5	77	18.9
1624	Mattresses and bed springs, n. e. c.....	4,464	23.9	5,145	26.0	3,925	25.4	4,044	27.5	21,879	25.8	12,327	25.2	9,552	26.6	13	1.5
628	Perfumes, cosmetics, and other toilet preparations.....	2,115	16.1	2,036	14.6	1,614	16.7	1,518	17.7	30,271	25.3	10,958	16.6	19,313	25.8	6	1.1
1207	Lighting equipment.....	3,492	17.4	4,663	19.2	3,176	19.0	3,996	23.2	20,895	24.4	10,924	27.4	9,971	21.8	4	.8
1125	Tools, not including edge tools, machine tools, files, or saws.....	3,783	22.5	3,913	21.3	2,881	22.8	2,971	22.3	12,574	23.9	4,628	24.8	7,946	23.5	13	3.8
206	Hats, felt and straw, except millinery.....	7,161	28.7	8,717	30.3	6,968	28.9	7,013	31.5	22,050	23.7	8,992	18.5	13,058	29.4	5	1.7
320	Wood turned and shaped and other wooden goods, n. e. c.....	5,185	21.8	4,186	20.4	4,467	22.6	3,714	23.1	14,109	23.6	6,940	20.6	7,169	21.3	13	4.7
114	Feeds, prepared, for animals and fowls.....	1,000	12.3	2,516	13.7	1,492	12.9	1,611	14.6	66,391	23.0	53,548	23.2	12,843	22.2	39	4.2
1013	Lime.....	1,332	16.0	1,425	18.8	1,227	16.4	1,207	20.0	5,311	22.7	1,900	21.3	3,411	23.7	17	9.0
1369	Pumps (hand and power) and pumping equipment.....	4,116	20.9	6,308	23.4	3,065	20.5	4,155	24.0	18,714	22.7	7,721	20.5	12,990	24.1	5	1.6
1321	Screw-machine products and wood screws.....	3,754	21.7	4,780	21.7	3,262	21.7	3,881	23.1	13,958	22.2	7,010	26.4	6,948	19.0	6	2.0
1601	Artificial and preserved flowers and plants.....	906	25.2	883	26.6	865	26.9	794	30.1	1,953	21.7	444	19.5	1,309	23.0	5	2.6
1302	Cash registers, adding and calculating machines, and other business machines.....	5,712	24.6	8,308	24.6	4,568	23.6	5,693	24.0	20,200	21.3	4,566	33.1	15,634	19.3	7	7.5
1107	Forgings, iron and steel.....	2,380	17.2	10,464	54.2	2,107	17.2	9,746	64.5	13,932	21.0	7,515	21.6	6,417	20.3	13	7.0
906	Leather goods not elsewhere classified.....	1,175	16.6	1,175	15.7	1,002	16.7	876	16.1	5,046	19.1	2,001	17.3	2,745	21.0	4	1.0
1015	Minerals and earths, ground or otherwise treated.....	719	14.5	853	16.1	565	14.0	582	16.7	4,067	18.8	2,069	23.1	2,038	16.0	12	7.5
1017	Cheese.....	1,160	23.0	1,245	25.5	964	22.2	938	23.8	18,360	18.6	14,759	17.6	3,601	24.3	158	6.1
1618	Hand stamps and stencils and brands.....	768	18.2	1,783	16.5	439	19.4	450	17.7	1,685	18.1	587	22.1	1,068	16.5	8	2.9
1204	Sheet-metal work, not specifically classified.....	2,598	10.8	2,960	10.4	1,969	11.0	2,175	11.1	19,531	17.8	12,331	21.2	7,200	14.2	16	1.1
305	Caskets, coffins, burial cases, and other morticians' goods.....	3,064	19.2	3,758	19.2	2,849	20.7	3,127	22.6	11,551	17.6	5,060	17.2	6,491	17.9	25	4.6
910	Trunks, suitcases, and bags.....	1,345	17.6	1,281	15.5	1,250	18.8	1,051	16.6	4,812	17.2	2,592	17.4	2,250	16.9	5	1.6
103	Butter.....	4,620	18.6	4,583	17.2	3,581	19.4	2,978	17.0	86,266	17.2	71,712	17.0	14,554	18.6	160	4.6
313	Mirror and picture frames.....	483	15.1	578	16.3	402	15.0	439	17.2	1,679	17.0	746	17.9	933	16.4	4	2.3
627	Insecticides and fungicides, etc., n. e. c.....	919	9.0	673	7.9	369	10.6	361	10.6	8,867	16.6	3,834	15.5	5,013	17.3	4	.8
1648	Toys, n. e. c., games and playground equipment.....	2,894	16.7	2,758	16.0	2,671	17.4	2,317	19.1	8,688	16.6	3,578	15.2	5,110	18.0	7	1.9
1604	Brooms.....	842	17.8	661	17.6	769	18.5	537	17.5	2,329	16.2	1,018	14.0	1,281	18.7	4	1.1
121	Macaroni, spaghetti, vermicelli, and noodles.....	949	13.6	1,079	14.8	857	14.3	846	15.9	7,094	16.1	4,588	14.4	3,076	19.5	5	1.5
1606	Buttons.....	1,664	14.6	1,706	16.2	1,527	14.8	1,436	17.6	4,313	15.4	1,621	14.6	2,692	15.9	6	2.0
301	Baskets and rattan and willow ware, not including furniture.....	1,571	16.4	854	15.0	1,511	16.8	732	15.9	2,192	15.1	926	16.1	1,266	14.5	9	4.4
211	Waste and related products.....	1,197	11.3	1,188	10.9	1,105	12.0	854	11.6	9,815	14.9	6,358	15.1	3,457	14.6	12	3.8
505	Gloves and mittens, leather.....	1,457	13.7	1,427	14.3	1,389	14.2	1,275	15.0	4,056	14.4	1,788	13.3	2,268	15.4	4	1.6
1203	Lithography.....	3,320	15.3	4,966	14.1	2,880	15.8	3,723	15.4	13,067	14.2	4,563	15.3	8,504	13.7	10	2.6
100	Bookbinding and blank-book making.....	2,518	10.4	3,198	10.6	2,014	9.9	2,231	10.2	10,019	13.7	3,204	15.2	6,815	13.1	11	8.8
1205	Photogravure, not done in printing establishments.....	1,283	9.9	3,420	11.3	1,073	11.4	2,812	13.2	7,078	13.3	1,692	20.4	5,476	12.0	8	1.2
1205	Electroplating.....	680	9.5	810	9.0	612	9.8	627	9.0	2,268	12.4	805	17.5	1,463	10.7	7	1.3
1625	Models and patterns, not including paper patterns.....	485	9.8	966	11.9	382	9.3	619	10.1	1,797	11.7	623	19.5	1,174	8.7	6	1.0
1612	Miscellaneous articles, n. e. c.....	1,602	9.7	1,897	11.6	1,376	9.7	1,357	11.5	5,751	11.6	2,103	10.2	3,563	12.6	4	.6
1005	Concrete products.....	549	5.2	729	6.0	449	5.4	369	6.4	4,583	10.2	2,357	11.7	2,249	9.0	29	2.4
221	Embroideries; trimmings (not made in textile mills); etc.....	411	3.2	672	4.6	373	3.1	365	3.4	4,586	9.8	3,045	15.5	1,591	5.6	6	.5
1210	Jewelry.....	2,521	12.2	2,651	10.8	2,331	13.3	2,295	12.9	6,730	9.5	2,675	8.8	4,055	10.0	4	.4
1014	Marble, granite, slate, and other stone, cut and shaped.....	1,729	9.4	1,554	7.0	1,549	10.2	1,261	7.8	5,332	9.5	2,242	12.3	3,090	8.0	17	1.2
1640	Signs and advertising novelties.....	1,658	9.4	1,981	8.7	1,437	10.5	1,508	10.1	5,644	9.2	2,141	10.1	3,503	8.7	11	3.8
1601	Beverages, nonalcoholic.....	957	4.3	1,338	4.5	801	4.8	876	5.1	13,929	8.7	4,268	6.8	9,660	10.0	62	1.9

For footnotes, see end of table.

tries, 1935, based on value of products—Continued

[in thousands of dollars]

Largest eight producers													Industry number				
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.							
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry						
											Value added by manufacture	Number of establishments					
In industry																	
210 SMALL INDUSTRIES—Continued																	
6,224	48.1	9,920	18.4	4,754	48.1	6,929	51.0	24,450	47.4	5,160	39.1	19,354	50.3	20	4.2	Printers' machinery and equipment	1425
8,606	41.0	13,369	44.3	7,927	40.9	11,845	43.9	21,282	44.0	7,533	43.3	13,749	44.4	66	25.5	Railroad repair shops, electric	1501
5,821	28.7	6,225	26.0	2,854	28.7	5,484	32.7	46,446	42.0	35,911	42.2	10,633	30.8	32	6.6	Roof and shoe cut stock and findings	962
2,490	47.3	2,453	50.0	2,337	47.5	1,623	50.5	9,022	48.9	3,373	56.5	3,649	40.8	9	10.1	Handkerchiefs	2972
8,530	41.8	17,236	39.6	7,726	41.7	5,551	39.8	30,684	44.6	14,950	43.3	15,734	45.8	21	14.2	Cordage and twine; jute goods; linen goods	2102
1,238	50.9	1,157	51.0	1,144	52.3	883	51.6	4,426	43.9	2,358	48.4	2,068	52.4	8	9.6	Umbrellas, parasols, and canes	1649
4,688	42.3	2,740	38.4	3,467	42.9	1,961	39.3	39,246	39.0	30,736	40.1	5,510	33.8	163	34.3	Poultry dressing and packing, wholesale	126
145	36.8	8	49.1	100	35.8	203	46.4	875	45.3	373	49.8	505	42.5	8	16.6	Theatrical scenery and stage equipment	1646
10,114	43.4	11,233	40.9	9,245	44.7	9,277	44.4	53,830	44.7	17,686	44.7	36,144	46.7	60	39.2	Cement	1002
11,380	50.2	14,515	48.8	9,611	50.4	10,835	51.0	31,597	45.9	10,330	44.2	21,267	46.5	14	4.0	Textile machinery and parts	1313
6,983	48.7	9,621	49.5	5,418	50.1	6,658	53.0	27,943	44.5	12,335	42.5	15,708	46.1	12	9.4	Crane and derrick, excavating and road-building machinery	1324
2,182	38.2	2,446	37.0	1,761	37.1	1,999	37.1	15,084	37.9	8,257	37.2	6,827	38.7	26	10.0	Greases and tallow, not including lubricating greases	617
8,356	41.7	11,414	40.9	6,506	42.8	7,534	42.9	29,383	43.0	9,156	44.6	20,227	42.3	16	5.7	Instruments and apparatus, professional, scientific, commercial, and industrial	1620
1,187	26.8	1,950	28.7	744	26.3	945	31.2	16,936	39.9	6,205	35.9	10,731	42.7	8	2.0	Cleaning and polishing preparations	609
5,201	36.6	5,963	38.6	4,689	36.8	4,845	40.1	22,326	44.4	10,011	47.1	12,315	42.4	20	13.1	Synthetic resin, cellulose-plastic, etc., n. e. c.	315
2,591	36.9	3,478	38.4	2,469	38.4	2,811	37.6	15,560	40.1	2,966	46.0	10,594	37.4	16	2.2	Furs, dressed and dyed	1616
918	39.4	994	37.2	759	42.1	634	36.4	3,556	41.0	1,653	40.3	1,963	41.7	10	7.1	Window and door screens and weather strip	318
3,836	26.8	2,718	32.9	3,602	27.0	2,059	32.6	23,462	38.7	14,447	36.9	9,015	42.1	16	5.8	Canned and cured fish, crabs, shrimps, oysters, and clams	104
829	26.5	975	26.9	649	29.5	598	28.4	13,703	37.6	5,740	35.7	7,963	37.1	11	3.5	Liquors, vinous	135
1,072	33.3	1,409	29.6	725	37.5	834	35.6	14,472	40.1	9,166	44.1	5,306	34.6	13	7.2	Lubricating greases, not made in petroleum refineries	704
1,340	35.5	1,365	35.2	1,209	37.4	1,096	37.5	5,043	37.8	3,114	40.3	1,929	34.3	8	5.0	Saddlery, harness, and whips	909
9,326	45.1	7,293	42.7	8,292	47.5	5,363	45.9	58,356	41.6	39,760	42.6	18,596	37.7	168	25.1	Fertilizers	614
3,641	34.1	3,610	36.7	3,417	34.9	3,140	39.3	18,445	40.5	12,665	42.6	6,197	37.2	30	21.6	Copperage	306
5,295	29.6	6,128	31.0	4,659	30.6	4,479	32.6	26,478	31.2	15,275	31.2	11,183	31.2	30	3.6	Mattresses and bed springs, n. e. c.	1624
3,944	25.5	3,756	23.3	2,040	27.3	2,490	28.7	48,655	40.7	15,499	34.8	33,156	44.2	10	1.8	Perfumes, cosmetics, and other toilet preparations	628
5,290	36.1	7,025	28.9	4,652	27.9	5,570	32.3	29,381	34.8	13,750	34.5	16,081	35.1	8	1.6	Lighting equipment	1207
5,131	34.1	5,427	31.7	4,428	35.0	4,483	33.7	18,981	36.1	6,778	36.6	12,103	35.8	17	5.0	Tools, not including edge tools, machine tools, files, or saws	1125
9,315	37.3	11,493	40.0	8,647	37.5	10,007	41.3	31,462	38.8	13,912	29.6	17,550	39.5	11	3.7	Hats, felt and straw, except millinery	206
6,489	27.2	5,318	25.9	6,044	28.1	4,594	28.6	17,076	28.6	8,259	31.7	8,817	26.2	27	3.6	Wood turned and shaped and other wooden goods, n. e. c.	320
3,271	21.8	4,194	22.8	2,552	22.1	2,689	24.3	99,058	34.3	79,473	34.4	19,605	33.8	62	6.6	Feeds, prepared, for animals and fowls	114
2,274	21.4	2,192	22.8	2,114	28.2	1,880	31.1	8,379	33.9	2,968	33.6	5,381	37.4	28	14.8	Lime	1013
6,185	31.0	9,019	33.4	4,628	30.9	5,950	34.3	30,643	35.2	11,038	31.3	19,665	37.9	9	2.8	Pumps (hand and power) and pumping equipment	1369
6,083	35.2	7,777	33.0	5,296	35.2	5,752	34.2	26,725	32.9	9,854	37.1	10,871	39.8	12	4.0	Screw-machine products and wood screws	1117
4,638	27.6	6,351	29.0	3,575	29.9	4,228	28.6	23,914	32.7	11,816	32.9	12,098	32.5	14	3.4	Bottle shops	1321
1,125	31.1	1,136	34.2	1,043	32.5	958	36.7	3,166	35.2	1,315	39.8	1,851	32.5	9	4.7	Artificial and preserved flowers and plants	1601
9,519	40.8	13,027	38.6	7,370	39.9	9,210	39.8	29,750	31.1	7,218	52.4	22,497	27.8	13	14.0	Cash registers, adding and calculating machines and other business machines	1302
4,088	29.5	12,775	66.2	3,641	29.7	11,608	76.8	21,531	32.5	11,251	32.4	10,280	32.5	19	10.3	Forgings, iron and steel	1107
1,566	22.1	1,695	22.7	1,341	22.3	1,260	23.2	6,997	26.5	3,328	24.4	3,759	28.7	8	2.0	Leather goods not elsewhere classified	906
1,257	25.4	1,404	26.5	1,080	25.4	996	27.6	6,944	32.2	3,292	37.9	3,652	29.4	19	11.8	Minerals and earths, ground or otherwise treated	1015
1,426	28.2	1,800	30.7	1,177	27.7	1,123	28.5	22,245	22.5	17,829	21.2	4,416	29.8	189	7.3	Cheese	107
929	29.8	1,132	27.3	747	33.1	783	30.9	2,666	29.9	882	33.2	1,814	27.2	15	5.4	Hand stamps and stencils and brands	1618
3,184	14.6	4,188	14.4	2,511	14.5	2,810	14.4	28,905	24.8	18,408	31.9	10,497	29.4	39	2.2	Sheet-metal work, not specifically classified	1204
3,970	24.6	4,872	24.9	3,625	26.3	3,983	28.8	15,457	23.5	6,525	25.2	8,632	29.3	30	5.5	Caskets, coffins, burial cases, and other morticians' goods	305
2,066	27.0	2,109	25.5	1,907	28.6	1,692	26.7	7,431	26.1	3,824	25.6	3,627	27.2	10	3.2	Trunks, suitcases, and bags	910
6,838	27.4	7,039	26.4	5,154	27.9	4,477	25.6	128,750	25.7	107,407	25.4	21,343	27.5	244	7.0	Butter	1013
877	27.4	1,021	28.8	756	28.2	756	29.6	3,676	31.1	1,452	34.8	1,624	36.8	8	4.7	Mirror and picture frames	1313
4,512	15.6	1,139	14.3	649	18.7	693	20.4	14,462	27.0	6,325	26.0	8,137	28.0	14	2.6	Insecticides and fungicides, etc., n. e. c.	627
831	25.5	4,444	27.3	4,016	26.1	3,515	29.0	13,366	25.6	5,854	24.8	7,512	26.4	11	2.9	Toys, n. e. c., games, and playground equipment	1648
1,108	23.3	933	24.9	1,046	25.2	773	25.2	3,297	29.1	1,456	19.9	1,811	26.4	9	2.3	Brooms	1014
1,672	24.0	1,834	25.2	1,522	25.3	1,439	27.1	12,574	26.4	8,093	25.4	4,481	28.4	9	2.7	Macaroni, spaghetti, vermicelli, and noodles	121
2,942	25.9	2,852	27.1	2,700	26.2	2,302	28.2	7,579	27.0	2,937	26.5	4,642	27.4	15	5.1	Batons	1066
2,336	24.3	1,438	25.6	2,219	24.6	1,176	25.5	3,710	25.6	1,401	25.5	2,249	25.7	14	6.9	Baskets and rattan and willow ware, not including furniture	361
1,879	17.7	1,988	18.2	1,679	18.2	1,331	18.1	15,934	24.1	10,680	25.3	5,254	22.1	16	5.1	Waste and related products	211
2,563	24.2	2,540	25.0	2,428	24.8	2,215	26.1	6,527	23.2	3,099	22.4	3,518	23.9	8	3.6	Miscellaneous mittens, leather	905
5,228	24.0	7,936	22.5	4,266	24.1	5,720	23.7	20,615	22.4	7,042	23.5	15,572	21.9	14	3.6	Lithographing	506
4,124	17.0	5,142	17.9	3,408	16.7	3,862	17.7	15,111	20.6	4,874	23.1	10,237	19.6	14	1.4	Bookbinding and blank-book making	501
1,999	15.4	4,959	16.3	1,633	17.4	3,927	18.4	10,788	20.2	2,802	35.7	7,956	17.5	13	2.0	Photogravure, not done in printing establishments	507
1,127	15.6	1,362	15.7	1,021	16.4	1,083	15.6	3,237	17.7	1,601	23.1	2,176	15.9	11	2.0	Electroplating	1205
7,207	34.3	1,353	16.7	576	16.4	926	15.1	2,357	16.7	756	24.0	1,791	14.8	10	1.7	Models and patterns, not including paper patterns	1625
2,782	16.9	3,079	19.9	2,472	17.4	2,339	19.9	9,268	18.7	3,675	17.8	5,593	19.3	10	1.5	Miscellaneous articles, n. e. c.	1612
884	8.3	1,152	9.5	737	8.8	816	10.4	6,882	15.3	3,652	18.2	3,260	19.0	44	3.6	Concrete products	1005
966	6.6	1,102	7.5	758	6.4	605	5.6	6,312	14.7	4,425	23.6	2,187	8.2	10	1.9	Embroideries; trimmings not made in textile mills; etc.	221
3,291	15.9	3,710	15.0	2,972	17.4	3,016	19.6	10,945	15.4	4,410	14.6	6,335	16.1	8	8.8	Jewelry	1210
2,825	15.3	2,805	12.7	2,485	16.3	2,163	13.4	7,527	13.9	2,993	16.4	4,834	12.6	24	1.7	Marble, granite, slate, and other stone, cut and shaped	1014
2,735	15.5	3,352	14.8	2,270	16.6	2,463	16.5	9,035	14.7	3,122	14.7	5,913	14.7	51	4.7	Stamps and advertising novelties	507
1,317	5.9	1,854	6.3	1,089													

TABLE II.—Concentration in manufacturing indus

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.		Value added by manufacturer		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
210 SMALL INDUSTRIES—Continued																	
908	Pocketbooks, purses, and cardcases . . . . .	1,034	8.2	906	7.8	993	8.7	787	8.5	3,632	8.4	1,984	8.9	1,618	7.9	5	1.6
214	Furnishing goods, men's . . . . .	1,375	5.6	1,077	5.0	1,305	5.7	920	5.4	6,949	7.7	3,796	3.1	3,153	7.6	1	.5
218	Housefurnishings. . . . .	1,353	8.1	1,233	8.0	1,231	8.6	1,017	9.4	6,688	7.7	4,259	7.7	32,420	7.7	6	7.8
215	Fur goods . . . . .	273	1.7	384	2.0	232	1.8	466	2.2	3,708	2.6	12,786	3.1	982	1.8	4	.6

\* Large industries, those employing more than 100,000 persons; medium industries, those employing 25,000 to 100,000 persons; small industries, those employing less than 25,000 persons.

† Includes cost of materials, mill and shop supplies, containers, fuel, and purchased electric energy.

‡ Value of products less cost of materials, containers, fuel, and purchased electric energy.

TABLE III.—Concentration in manufacturing indus

[Values in thou

8 LARGE IN

Industry No.	Industry	Largest 4 producers											
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry
212	Wool and hair manufactures.....	37,509	21.3	36,434	20.6	35,547	21.4	32,273	21.2	165,458	23.3	102,679	23.8
213	Men's cotton garments.....	13,679	10.6	9,043	10.4	13,059	10.7	8,046	10.9	29,112	8.8	15,815	19.6
1305	Cotton manufactures.....	38,253	9.2	26,293	9.5	35,430	9.2	24,581	9.9	82,831	8.0	49,169	8.8
309	Machinery not elsewhere classified.....	11,927	8.4	17,628	8.8	9,402	8.6	12,867	9.8	40,033	6.9	13,227	6.1
309	Furniture, including store and office fixtures.....	7,235	4.9	6,797	4.7	6,564	5.0	5,772	5.1	24,116	5.5	11,400	5.5
215	Men's, youths', and boys' clothing, n. e. c.	8,956	5.3	9,851	5.6	8,183	5.3	8,334	5.7	31,233	5.0	14,640	5.0
508	Printing and publishing, book, music, and job.....	7,803	4.7	12,128	4.7	6,450	5.1	8,997	5.3	30,290	4.4	6,818	5.5
216	Women's, misses', and children's apparel, n. e. c.	5,223	1.8	3,533	1.2	5,042	1.9	3,162	1.3	17,943	1.4	7,794	1.3
20 MEDIUM INDUSTRIES*													
1410	Ship and boat building, steel and wooden, including repair work.....	21,898	42.7	31,092	44.2	19,403	43.2	25,137	45.3	69,014	44.6	25,615	42.4
1109	Hardware not elsewhere classified.....	16,346	34.4	20,138	37.1	14,479	34.9	17,005	40.1	53,689	36.3	19,331	33.7
705	Petroleum refining.....	32,404	35.2	52,235	36.4	27,379	35.3	40,420	36.9	621,662	33.8	491,824	33.3
626	Paints, pigments, and varnishes.....	10,828	28.0	14,559	25.7	8,587	31.0	10,381	32.2	134,129	32.2	69,409	29.9
1319	Radio apparatus and phonographs.....	18,910	36.3	21,967	38.1	15,539	34.7	15,014	35.0	57,368	28.5	25,729	24.8
1304	Engines, turbines, water wheels, and windmills.....	7,301	26.2	11,455	29.7	5,655	25.7	7,887	29.4	28,899	28.9	10,286	24.5
1127	Wirework not elsewhere classified.....	6,750	23.5	8,675	25.7	5,940	23.7	6,903	27.1	26,192	22.3	10,215	18.4
1322	Foundries.....	19,017	19.5	27,134	23.5	18,650	20.8	26,341	27.7	62,856	25.1	25,122	25.7
907	Leather: tanned, curried, and finished.....	10,362	18.9	13,512	20.3	9,644	18.9	11,804	21.2	67,071	21.8	41,386	20.9
1122	Structural and ornamental metal work.....	8,622	24.8	9,656	22.6	7,414	27.2	7,319	26.0	39,000	34.3	25,141	27.2
1318	Machine-tool accessories and machinists' precision tools.....	5,393	19.8	8,987	20.1	4,954	21.4	7,906	23.0	20,897	21.6	7,439	27.6
1004	Clay products, other than pottery.....	7,256	14.7	5,661	12.9	6,989	15.7	5,121	14.8	21,412	19.2	8,587	22.5
209	Rayon manufactures.....	12,702	17.2	9,556	15.3	12,484	17.8	8,741	15.9	35,455	17.3	21,104	18.7
408	Paper goods not elsewhere classified.....	5,142	15.6	5,706	14.4	4,397	16.0	4,283	16.2	25,946	13.2	12,657	11.5
112	Confectionery.....	5,731	9.9	5,550	10.3	5,296	10.2	4,274	10.9	31,900	12.3	17,019	11.1
304	Boxes, wooden, except cigar boxes.....	2,045	8.2	2,169	11.3	1,816	7.9	1,697	11.3	8,758	13.8	4,553	14.2
204	Dyeing and finishing cotton, rayon, and silk.....	11,016	13.9	12,030	14.1	9,621	13.5	9,088	13.7	26,293	11.8	10,003	9.8
210	Silk manufactures.....	4,990	8.6	4,535	9.7	4,588	8.2	3,808	9.4	12,782	8.5	5,840	8.4
1326	Machine shops.....	8,561	8.6	11,808	8.8	7,130	8.6	9,149	9.4	31,391	7.5	10,394	6.0
314	Platine-mill products (including general millwork).....	2,858	5.0	2,636	4.6	2,553	5.3	2,100	5.1	8,964	4.6	4,605	5.0
109 SMALL INDUSTRIES*													
1636	Photographic apparatus and materials and projection apparatus.....	12,496	80.2	18,541	79.9	9,754	81.3	13,005	82.3	57,395	77.6	12,978	49.7

For footnotes, see end of table.

## sands of dollars]

Largest eight producers														Industry	Industry number		
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. 1		Value added by manufacture 1				Number of establishments	
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry			Number	Percent of industry
210 SMALL INDUSTRIES—Continued 1																	
1,732	13.8	1,615	13.9	1,591	13.9	1,291	14.0	6,795	15.8	3,579	16.1	3,216	15.5	9	2.8	Pocketbooks, purses, and cardcases.....	908
2,772	11.2	2,067	9.6	2,635	11.6	1,767	10.3	11,635	13.0	6,464	13.5	5,171	12.4	5	1.0	Furnishing goods, men's.....	214
2,218	13.3	1,932	12.6	1,997	13.9	1,531	14.1	11,056	12.7	7,104	12.8	3,952	12.5	20	25.9	Housefurnishings.....	218
493	3.0	1,012	3.5	431	3.4	816	3.9	6,414	4.5	4,535	5.1	1,879	3.4	5	.4	Fur goods.....	1012

<sup>3</sup> The data for the largest 4 enterprises are combined with those for the largest 8 enterprises in order to avoid approximate disclosures of individual data.

<sup>4</sup> The data for the "remainder" of the industry are included in the data for the largest 8 enterprises in order to avoid approximate disclosures of individual data.

## sands of dollars]

## DUSTRIES\*

Largest 8 producers																Industry	Industry No.
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. 1		Value added by manufacture 4		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
50,349	78.6	49,353	27.9	47,778	28.7	41,050	29.9	233,745	32.9	150,452	34.9	83,293	29.8	65	9.3	Wool and hair manufactures	215
21,861	17.0	14,514	16.7	20,959	17.2	13,040	17.7	55,974	16.9	34,426	18.8	21,548	14.5	72	6.1	Men's cotton garments	216
57,275	14.5	40,580	14.6	55,992	14.6	37,796	15.2	146,334	14.2	90,278	14.1	56,056	13.9	54	4.4	Cotton manufactures	217
16,678	11.7	24,331	12.1	19,003	11.8	17,878	13.6	64,175	11.0	24,002	11.0	10,173	11.0	23	0	Machinery not elsewhere classified	218
11,841	8.0	11,426	7.9	10,801	8.2	9,678	8.5	38,303	8.8	19,064	9.2	19,239	8.5	22	7	Furniture, including store and office fixtures	219
12,678	7.5	14,135	8.1	11,481	7.4	11,785	8.1	51,964	8.4	24,260	8.3	27,704	8.6	23	8	Men's, youths', and boys' clothing, n. e. c.	220
10,863	6.5	16,677	6.5	8,357	6.4	11,688	6.9	45,175	6.5	11,163	5.7	34,012	6.7	33	5.5	Printing and publishing, book, music, and job	221
7,841	2.7	5,842	1.9	7,412	2.8	4,965	2.0	29,609	2.3	13,810	3.2	15,799	2.4	18	2	Women's, misses', and children's apparel, n. e. c.	222
20 MEDIUM INDUSTRIES*																	
32,620	63.6	44,997	64.0	28,352	63.2	35,382	63.8	100,158	64.7	40,688	67.3	59,470	63.0	26	4.7	Ship and boat building, steel and wooden, including repair work	1410
20,775	43.7	25,082	46.2	18,297	44.1	20,677	48.8	67,230	45.5	25,041	43.6	42,189	46.7	15	3.7	Hardware not elsewhere classified	1106
13,557	35.1	18,318	33.2	10,697	38.6	12,856	39.9	174,168	41.8	93,994	40.5	80,174	43.3	70	6.5	Paints, pigments, and varnishes	1107
23,605	45.3	26,451	45.8	19,735	44.1	18,679	43.5	77,569	38.6	37,511	36.2	40,058	41.1	13	6.6	Radio apparatus and phonographs	1108
11,378	40.9	17,268	44.7	8,928	40.5	12,166	45.1	47,233	47.2	20,683	49.2	26,550	45.8	9	6.0	Engines, turbines, water wheels, and wind-mills	1109
10,418	36.2	12,359	36.6	9,395	37.3	10,052	39.5	41,481	35.3	19,251	34.6	22,290	35.9	25	4.7	Wirework not elsewhere classified	1120
26,117	26.8	35,239	30.5	25,100	28.0	33,122	33.6	82,311	32.9	30,284	33.7	52,027	32.4	48	3.8	Foundries	1121
16,239	29.6	20,418	30.7	15,108	29.7	17,659	31.7	105,753	34.3	66,693	33.7	59,056	35.4	51	13.3	Leather, tanned, curried, and finished	1122
10,483	30.1	12,203	28.6	8,913	32.7	9,106	32.3	50,622	31.2	32,551	35.2	18,071	26.5	28	2.5	Structural and ornamental metal work	1123
7,657	28.1	12,724	28.5	6,817	29.5	10,006	30.8	29,771	30.7	10,334	38.4	19,137	27.8	12	1.6	Machine-tool accessories and machinists' precision tools	1319
9,996	19.7	8,363	19.0	9,152	20.5	7,097	20.5	29,998	26.6	11,578	30.	18,820	21.6	63	5.9	Clay products, other than pottery	1409
18,477	25.0	14,391	23.0	17,966	25.6	13,039	23.7	52,506	25.6	30,851	27.3	21,525	23.7	37	6.0	Rayon manufactures	209
7,034	21.3	8,313	21.0	5,957	21.7	6,088	23.4	46,484	23.7	25,955	23.6	20,629	23.2	22	4.0	Food products not elsewhere classified	409
9,172	15.8	8,948	15.8	8,208	15.9	8,415	17.4	51,827	19.9	29,435	19.2	22,292	21.1	16	1.2	Confectionery	1112
4,179	16.7	5,898	18.7	3,874	16.8	2,939	19.6	13,799	21.8	7,324	22.8	6,475	20.8	51	4.7	Boxes, wooden, except cigar boxes	309
18,036	22.7	19,170	22.5	16,074	22.5	14,571	22.0	48,254	21.6	25,061	23.2	24,293	22.2	20	3.8	Dyeing and finishing cotton, rayon, and silk	209
7,678	13.1	6,812	13.4	7,071	12.7	5,565	13.8	29,021	16.7	12,511	18.0	12,510	15.6	10	1.6	Silk manufactures	210
13,068	13.1	17,094	13.1	11,111	13.3	13,573	14.2	61,157	14.6	28,949	16.6	32,708	13.4	20	7	Machine shops	1329
4,225	7.4	4,195	7.3	3,703	7.7	3,416	8.1	15,952	8.1	9,503	8.7	6,449	7.2	29	1.1	Flour-mill products (including general millwork)	131
109 SMALL INDUSTRIES*																	
13,256	85.8	20,086	86.7	10,370	86.1	13,921	88.1	62,821	84.9	13,325	58.6	47,496	99.3	15	12.7	Photographic apparatus and materials and projection apparatus	1636

TABLE III.—Concentration in manufacturing industries,

[Values in thou

Industry number	Industry	Largest four producers										Value added by manufacturer :	Number of establishments		
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product					
		Amount		Percent of industry		Number		Amount		Percent of industry					
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry		
109 SMALL INDUSTRIES—Continued															
602	Amputation and related products.....	5,650	89.4	3,990	88.8	5,055	90.3	4,087	91.5	24,107	91.6	9,418	92.3		
1106	Explosives.....	4,103	77.7	5,830	78.1	3,654	79.9	4,708	83.4	33,178	81.6	13,428	79.0		
1206	Firearms.....	4,296	78.6	5,254	79.9	3,808	78.4	4,482	81.5	10,670	81.9	2,680	79.1		
1206	Fire extinguishers, chemical.....	810	73.2	1,120	76.4	618	76.7	781	81.0	4,097	76.6	1,832	74.1		
1201	Aluminum products.....	16,817	78.2	19,410	75.5	11,697	76.2	15,633	77.1	78,789	75.7	44,379	70.0		
1631	Sops.....	10,005	78.6	13,309	79.1	8,319	59.8	9,809	64.0	171,542	71.8	97,199	69.7		
1634	Pens, fountain and stylographic, pen points, gold, steel, brass.....	2,812	61.6	2,849	59.7	2,311	61.1	2,092	61.0	12,595	70.4	3,690	63.8		
1641	Soda fountains and accessories.....	1,037	69.5	1,649	70.8	775	70.7	1,056	73.6	6,071	73.9	3,079	74.7		
1212	Sewing machines and attachments.....	7,135	82.0	9,334	80.6	6,288	83.7	7,546	83.9	4,800	74.6	12,057	72.6		
106	Cereal preparations.....	8,802	62.7	7,537	63.4	5,221	66.2	6,085	71.4	98,213	67.0	51,885	62.9		
129	Sugar, beet.....	6,095	56.4	7,092	61.4	5,168	56.0	5,751	61.6	63,011	66.2	46,315	65.1		
1222	Watchcases.....	1,628	58.9	2,108	68.7	1,399	69.4	1,654	71.0	4,066	58.6	1,286	45.6		
1641	Card cutting and designing.....	1,766	44.5	1,808	47.1	1,362	49.8	1,470	51.7	11,064	64.1	4,890	63.5		
1001	Asbestos products other than steam packing, etc.....	7,555	68.8	8,113	67.8	6,715	69.8	6,497	69.9	24,089	63.1	10,830	63.1		
630	Salt.....	2,475	44.6	2,945	46.0	2,235	45.0	2,314	47.4	17,703	59.5	5,883	53.8		
1218	Smelting and refining, zinc.....	5,442	42.6	7,339	56.8	4,884	38.1	5,577	43.8	42,533	61.5	26,496	48.6		
607	Candles.....	920	35.7	616	37.2	419	38.8	353	58.9	1,282	59.7	1,445	61.9		
1109	Motorcycles, bicycles, and parts.....	3,402	59.0	4,044	61.6	2,957	58.0	3,248	62.3	13,640	59.1	7,293	57.0		
1647	Tobacco (chewing and smoking) and snuff.....	4,906	41.4	4,842	46.4	4,492	44.6	4,699	48.5	78,447	59.9	50,402	56.0		
1641	Dentists' equipment and supplies.....	2,463	45.5	3,787	52.6	1,704	39.9	2,104	51.2	11,542	50.0	3,067	33.9		
633	Wood distillation and charcoal manufacture.....	2,050	47.3	1,967	52.2	1,776	46.7	1,443	51.3	8,555	53.6	3,663	46.2		
220	Artificial leather or cloth.....	2,425	56.3	3,115	55.6	2,092	56.5	2,443	58.1	19,809	57.7	13,067	56.4		
605	Baking powder, yeast, and other leavening compounds.....	2,133	63.6	4,285	67.7	1,690	63.4	2,954	69.1	18,458	57.1	7,867	54.6		
1315	Washing machines, wringers, driers, ironing machines.....	3,492	53.5	7,381	58.5	4,639	53.0	5,926	60.2	34,879	55.9	20,147	54.4		
1311	Scales and balances.....	1,296	39.6	1,762	42.0	949	38.4	1,085	41.2	7,048	42.7	1,561	41.2		
1617	Pair work.....	247	40.0	301	46.6	193	35.5	156	35.7	1,216	44.4	265	25.5		
115	Flavoring extracts, simps, and related products.....	533	11.7	819	12.2	358	12.3	364	13.7	32,301	47.6	10,648	36.5		
1644	Foundry supplies.....	163	28.2	251	37.3	118	29.5	151	33.9	3,322	56.9	1,698	39.3		
625	Oils not elsewhere classified.....	831	39.7	1,084	36.8	692	39.1	783	43.3	17,028	40.8	10,671	36.8		
1128	Wrought pipe, welded and heavy riveted.....	4,803	41.2	6,194	42.1	4,520	42.1	5,339	45.2	34,663	46.9	19,606	45.4		
1654	Wool pulling.....	349	36.7	441	35.7	322	37.2	372	38.2	4,565	36.8	2,917	32.4		
1217	Smelting and refining, nonferrous metals other than silver, gold, platinum.....	2,008	45.7	2,446	40.4	1,713	45.7	1,636	71.4	26,491	42.3	21,434	41.2		
111	Condensed and evaporated milk.....	4,358	44.1	4,485	41.1	3,859	45.6	3,618	43.5	73,218	42.7	33,956	41.2		
1222	Malt.....	697	40.6	1,408	39.3	589	40.9	925	39.4	32,778	43.6	23,967	42.5		
1033	Penicils, lead (including mechanical) and crayons.....	2,579	42.3	2,859	45.2	2,165	41.8	1,894	44.8	8,960	44.8	3,460	41.9		
1404	Carriages, wagons, sleighs and sleds.....	701	37.7	722	40.9	600	39.7	529	41.2	2,865	41.8	1,405	38.2		
1644	Musical instruments and parts and materials, n. e. c.....	1,386	39.4	1,861	44.0	1,067	37.2	1,281	42.5	3,662	40.4	778	28.5		
1644	Steam and other packing, pipe and boiler covering, gaskets, n. e. c.....	2,965	51.5	3,310	46.9	2,576	54.0	2,492	52.6	11,367	46.9	5,807	49.4		
1638	Roofing, built-up and roll; asphalt shingles, roof coatings.....	3,005	40.8	3,595	41.4	2,685	41.4	2,838	42.4	31,537	41.4	16,908	39.3		
1603	Artists' materials.....	184	35.0	284	39.8	115	32.9	121	35.9	1,255	51.6	736	60.2		
2171	Gloves and mittens, cloth or cloth and leather combined.....	3,684	43.8	2,069	40.3	3,608	44.8	1,944	43.3	8,152	43.0	4,438	43.1		
1102	Cast-iron pipe and fittings.....	3,003	34.3	4,001	31.5	4,711	34.8	3,412	32.9	15,983	42.7	6,105	41.3		
618	Ink, printing.....	1,523	38.3	2,227	39.8	935	39.4	1,309	40.4	16,400	47.5	9,603	51.7		
1627	Musical instrument parts and materials, piano and organ.....	553	40.2	577	39.6	518	42.6	440	42.8	1,237	38.8	416	34.0		
616	Glue and gelatin.....	1,467	37.6	1,773	34.2	1,329	40.8	1,443	36.8	9,788	34.7	4,384	29.1		
1106	Galvanizing and other coating.....	508	42.6	759	40.3	549	45.7	380	37.8	1,791	34.5	471	29.5		
604	Blacking, stains, and dressings.....	464	21.3	745	22.8	358	23.9	365	24.9	6,546	36.5	2,618	31.3		
604	Carbon paper and inked ribbons.....	618	31.6	1,090	36.2	470	31.6	558	34.9	5,104	34.7	2,176	29.0		
411	Wall paper.....	1,872	38.3	2,145	35.9	1,675	39.3	1,710	38.1	7,292	37.1	3,317	33.5		
601	Belting and packing, leather.....	1,321	32.1	1,047	29.1	822	36.1	789	31.3	8,142	37.9	4,135	35.8		
621	Mucilage, paste, and other adhesives, except glue and rubber cement.....	128	26.9	226	30.5	79	26.6	92	31.8	1,265	35.6	490	40.7		
1653	Beauty-shop equipment, except furniture, cutlery (not including silver and plated cutlery) and edge tools.....	676	25.4	709	23.2	607	27.9	513	26.1	4,914	39.2	1,936	28.6		
1202	Clocks, watches, etc., and materials and parts, except watches.....	2,271	14.7	2,849	15.7	2,006	14.6	1,968	14.5	18,151	35.5	2,828	15.8		
1202	Clocks, watches, etc., and materials and parts, except watches.....	8,331	41.1	9,384	41.4	7,499	41.6	7,689	42.0	21,565	35.2	6,280	27.9		
1649	Umbrellas, parasols, and canes.....	905	37.2	815	36.0	839	38.4	621	36.3	2,949	29.2	1,419	23.1		
1114	Plumbers' supplies.....	6,910	30.1	7,995	29.8	6,456	32.1	7,192	33.7	24,219	32.0	8,115	25.5		
1224	Jewelry's findings and materials.....	930	30.2	1,279	33.1	830	31.2	1,003	36.8	6,930	40.4	4,652	42.5		
411	Ice cream.....	6,111	25.4	8,611	27.1	4,487	25.9	5,096	28.2	67,942	32.4	29,665	29.3		
601	Bags, paper, exclusive of those made in paper mills.....	3,000	30.9	2,988	29.5	2,907	31.8	2,521	31.4	21,664	32.7	13,108	30.1		
1212	Nonferrous-metal alloys, etc., n. e. c.....	27,267	37.4	34,323	36.6	23,631	37.6	27,215	37.8	142,358	36.2	83,267	37.9		
622	Cake, confectionery, confectionery.....	5,151	32.8	3,256	30.5	4,474	33.8	1,975	35.4	60,965	32.2	51,281	31.9		
1642	Sporting and athletic goods, not including firearms and ammunition.....	3,934	34.8	4,311	35.8	3,359	34.7	3,341	37.0	12,267	35.2	6,205	37.4		
1627	Lapinary work.....	67	33.0	113	38.3	39	28.6	90	44.8	731	35.6	472	38.1		
611	Grease and tallow, not including lubricating greases.....	1,772	31.0	2,249	29.2	1,416	29.9	1,582	29.3	11,424	28.7	5,827	26.2		
1641	Cranes, and dredging, excavating, and road-building machinery.....	4,547	31.7	6,551	33.7	3,498	32.4	4,405	35.0	18,158	29.9	7,397	25.7		

For footnotes, see end of table.

## 1935, based on value added by manufacture—Continued

[sands of dollars]

Eight largest producers—												Industry		Industry number	
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. <sup>1</sup>					Value added by manufacturer <sup>2</sup>
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry		Number
109 SMALL INDUSTRIES—Continued															
6,320	100.0	6,676	100.0	5,599	100.0	5,121	100.0	26,307	100.0	10,200	100.0	16,107	100.0	13	100.0
4,790	90.7	7,797	91.1	4,178	91.4	5,251	98.0	37,845	93.1	15,807	93.0	22,038	98.1	13	58.1
4,985	91.2	5,983	91.0	4,481	91.3	5,030	91.5	12,010	92.2	3,077	90.8	8,923	92.7	10	43.5
950	15.0	1,303	19.5	713	12.7	877	9.0	9,000	34.2	4,661	45.2	2,090	8.4	8	32.0
18,330	82.0	21,139	82.4	16,115	83.8	17,103	84.1	87,060	83.1	49,215	82.2	37,845	82.9	20	11.8
12,308	72.5	16,173	72.7	10,394	74.1	12,038	75.4	198,501	81.1	114,921	82.1	83,580	82.9	24	10.1
3,832	79.5	3,767	79.0	3,014	73.7	2,763	80.6	14,177	82.6	4,167	72.1	10,610	77.7	8	15.6
1,146	77.5	1,798	77.2	889	78.4	1,147	79.9	6,572	80.0	3,277	79.5	3,296	80.6	12	25.0
7,962	91.5	10,721	92.6	6,885	91.7	8,351	92.8	20,411	90.2	5,226	86.7	14,185	85.4	9	23.1
6,831	74.4	8,706	75.5	6,085	77.1	6,963	81.5	120,362	92.2	65,054	79.9	55,508	86.4	15	13.6
9,181	85.0	10,906	87.0	7,844	85.0	8,201	87.8	85,081	80.4	64,082	90.1	20,999	87.4	62	80.5
2,000	8.9	2,631	85.7	1,734	86.0	2,022	86.7	5,635	80.7	2,103	76.2	3,532	82.4	8	27.6
2,167	61.9	2,609	64.0	1,829	62.0	1,919	67.4	13,577	72.1	6,168	80.1	7,299	75.7	10	13.2
8,804	81.1	9,254	77.3	7,860	81.7	7,403	79.6	29,547	77.4	12,980	75.6	16,567	75.9	19	26.1
3,719	67.4	4,203	65.7	3,348	67.3	3,295	67.5	23,254	78.2	8,309	76.0	14,945	79.5	20	41.7
7,653	79.1	10,193	81.6	6,982	79.9	8,386	81.3	36,521	82.2	36,114	82.9	20,707	81.0	15	37.7
6,677	72.4	8,733	81.1	5,553	77.6	4,851	81.0	3,905	82.1	1,936	80.7	1,959	80.9	8	34.8
4,460	77.3	5,311	80.9	3,912	76.8	4,258	81.7	20,790	80.1	12,117	91.6	8,772	84.4	10	43.5
8,067	72.0	7,665	73.4	7,412	73.8	5,929	77.7	114,197	84.3	76,276	88.8	37,921	83.3	16	13.9
2,958	65.9	3,115	65.0	2,402	68.2	2,512	69.0	15,467	67.0	5,257	57.4	10,230	74.8	11	12.6
2,736	63.9	2,515	66.9	2,240	63.6	1,875	66.6	10,652	66.7	4,644	55.6	5,008	74.7	12	20.0
3,186	73.9	4,083	72.9	2,737	75.0	3,218	76.6	25,872	75.4	17,819	76.9	8,653	72.3	11	33.3
2,760	72.0	3,083	88.4	2,202	82.6	3,679	86.0	25,650	79.3	10,833	75.2	14,817	82.6	15	32.6
7,922	77.1	10,113	80.6	6,795	77.7	8,127	82.5	49,726	79.7	20,567	79.9	20,159	76.3	11	26.8
2,051	62.7	2,735	65.2	1,504	60.9	1,659	63.0	9,758	72.9	2,578	68.1	7,180	71.9	9	16.1
364	58.9	480	61.9	269	59.6	242	53.3	1,766	64.6	6,062	57.9	1,166	68.7	8	18.6
903	19.8	1,333	20.2	623	21.5	538	20.3	36,629	54.0	12,610	43.2	24,019	62.1	16	3.9
334	57.8	549	59.7	244	61.0	292	65.5	4,675	71.7	2,377	69.0	2,298	74.8	11	23.9
1,047	46.2	1,375	46.8	867	49.0	985	54.3	24,240	58.1	16,276	66.1	7,964	62.7	17	16.0
6,808	57.7	8,995	61.1	6,232	55.1	7,439	63.2	47,583	81.8	26,600	64.0	20,993	65.9	13	27.1
621	65.3	800	64.8	573	66.2	661	67.8	8,841	17.6	3,987	66.4	2,397	70.7	8	47.0
2,540	56.1	3,127	51.7	2,118	58.2	2,074	90.9	38,081	60.8	31,655	60.9	6,426	66.5	20	20.2
5,912	59.8	6,021	55.2	3,222	61.7	4,821	58.0	107,314	62.7	83,466	63.7	24,048	59.3	212	43.4
1,942	60.7	2,188	61.1	878	61.1	1,412	60.1	49,208	65.5	37,713	66.9	11,493	63.5	18	33.3
3,982	65.3	4,469	70.6	3,338	64.4	2,972	70.2	13,555	66.8	5,374	65.1	7,981	68.0	9	19.1
1,121	60.3	1,116	63.2	960	60.9	808	62.9	4,621	67.5	2,485	67.3	2,137	67.7	8	17.8
1,810	51.4	2,415	57.2	1,424	49.7	1,095	56.3	4,945	54.6	1,312	48.1	1,633	57.4	8	8.6
3,775	65.6	4,300	60.9	3,291	68.7	3,215	67.8	14,988	61.8	7,472	63.6	7,526	60.2	14	11.3
4,993	67.8	5,787	66.6	4,544	70.1	4,768	71.3	51,929	68.2	20,992	69.8	21,937	66.1	29	26.9
296	56.3	446	62.6	189	54.0	191	56.7	1,634	67.2	876	71.7	758	62.7	8	17.0
4,678	55.6	2,640	51.4	4,567	56.7	2,466	54.9	10,615	36.0	5,796	56.3	3,819	55.7	27	23.5
7,994	54.8	7,041	55.5	7,420	54.8	5,538	55.3	23,859	63.0	9,291	62.8	14,568	63.1	21	29.6
1,447	55.2	3,153	51.5	1,380	56.2	1,896	58.6	21,014	60.9	12,356	66.5	8,975	54.4	49	25.7
1,005	73.0	1,067	69.1	925	76.0	747	72.6	2,157	60.7	811	66.3	1,346	68.6	8	23.6
2,387	61.1	3,064	59.0	2,103	64.6	2,332	66.0	16,397	58.2	8,127	53.9	8,270	63.2	19	25.7
834	59.4	1,055	55.9	748	62.3	692	54.5	2,820	54.3	1,019	50.9	1,801	56.4	8	12.3
872	40.0	1,178	36.1	691	46.1	632	43.3	9,015	30.3	4,173	40.8	4,842	50.7	9	5.4
50.9	8.2	7.11	36.8	7.11	49.9	7.32	3.0	7,892	33.7	3,690	48.9	4,292	50.7	8	14.7
3,043	62.3	3,497	58.5	2,680	63.1	2,754	61.4	11,574	58.9	6,051	57.1	5,588	57.2	12	30.0
1,390	45.8	1,834	38.2	1,216	51.5	1,176	46.7	11,483	53.4	6,135	53.1	5,318	53.6	10	5.4
197	41.4	338	45.6	115	43.1	137	47.4	1,963	54.0	52	50.2	1,196	57.2	8	12.0
1,375	51.7	1,456	47.7	1,183	54.3	968	49.2	7,418	59.2	2,823	56.3	3,495	61.3	8	9.8
4,475	28.9	5,103	28.6	4,022	29.6	3,802	28.1	23,121	45.2	4,394	54.9	18,727	45.1	10	3.8
13,819	68.1	14,794	65.5	12,464	69.1	12,291	67.2	36,141	59.1	13,679	60.7	22,462	58.1	12	15.8
1,252	51.5	1,178	32.0	1,151	52.7	888	51.9	4,277	42.4	2,158	35.1	2,119	73.7	8	9.6
9,871	43.0	11,217	41.8	8,894	42.2	9,600	45.0	34,144	45.1	13,362	42.0	20,782	47.5	16	6.4
1,366	50.5	1,962	56.8	1,369	52.2	1,504	55.1	8,620	52.0	5,653	51.6	3,967	52.5	8	11.0
7,113	29.6	9,057	31.1	6,252	30.4	6,252	30.7	79,071	37.7	35,043	34.6	44,026	40.6	18	7.1
4,402	43.8	4,161	39.7	4,129	45.3	3,516	43.7	31,944	48.7	20,386	48.9	11,558	48.5	24	22.4
35,153	48.2	43,753	46.6	30,443	48.4	34,633	48.1	296,019	52.4	125,494	47.1	10,523	46.4	43	5.7
6,322	41.6	4,280	40.9	5,021	42.5	5,343	43.0	81,750	43.5	69,067	43.5	11,413	43.3	143	31.2
5,085	45.0	5,304	44.9	4,402	45.5	4,211	46.7	16,439	47.2	7,921	47.8	8,518	46.6	15	7.7
77	37.9	133	45.1	65	42.5	99	43.9	927	45.2	546	44.1	781	47.0	8	13.2
2,298	38.6	2,926	38.0	1,788	37.6	2,066	38.3	14,905	37.4	7,867	35.4	7,038	39.9	26	10.0
6,983	48.7	9,621	49.5	5,418	50.1	6,658	53.0	27,943	44.5	12,235	42.5	15,708	46.1	12	9.4
Ammunitions and related products.....															
Explosives.....															
Firearms.....															
Fire extinguishers, chemical.....															
Aluminum products.....															
Soap.....															
Pens, fountain and stylographic; pen points gold, steel, brass.....															
Soda fountains and accessories.....															
Sewing machines and attachments.....															
Cereal preparations.....															
Fruit and vegetable canning.....															
Meat and fish canning.....															
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TABLE III.—Concentration in manufacturing industries,

[Values in thous

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc. <sup>1</sup>		Value added by manufacture <sup>2</sup>		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		109 SMALL INDUSTRIES—Continued															
1651	Window shades (textile and paper) and fixtures.....	1,066	28.9	1,155	28.1	916	30.5	745	27.5	5,793	28.5	3,378	27.7	2,415	29.8	5	1.6
1616	Furs, dressed and dyed.....	2,379	33.9	3,130	32.6	2,283	35.5	2,622	34.7	5,810	27.2	1,385	21.3	4,425	29.8	7	4.2
609	Cleaning and polishing preparations.....	780	17.6	1,347	19.9	410	14.5	547	18.1	11,085	26.1	3,620	21.0	7,465	29.7	4	1.0
1620	Instruments and apparatus, professional, scientific, commercial, and industrial.....	5,432	27.1	7,806	28.0	4,069	26.8	4,906	27.9	18,613	27.2	4,926	24.0	13,687	28.6	5	1.8
1646	Theatrical scenery and stage equipment.....	82	20.8	212	30.5	60	21.5	136	31.1	580	29.9	245	32.7	335	28.2	4	8.3
1613	Feathers, plumes, and manufactures thereof.....	134	19.9	154	25.2	115	20.1	99	23.4	576	35.0	293	48.0	283	27.3	4	5.5
614	Fertilizers.....	6,482	27.5	5,273	29.5	5,734	28.1	3,882	31.8	36,356	25.6	24,018	24.7	12,338	27.3	105	13.3
318	Window and door screens and weather strip.....	652	28.0	673	25.2	592	31.6	449	25.8	2,241	25.8	1,006	24.5	1,235	27.1	6	4.3
126	Poultry dressing and packing, wholesale.....	3,134	33.1	2,124	29.8	2,711	33.6	1,529	30.2	27,707	29.8	23,344	30.5	4,363	26.8	155	27.6
628	Perfumes, cosmetics, and other toilet preparations.....	1,602	12.2	1,865	11.6	1,260	13.0	1,231	14.4	29,128	24.4	9,257	20.8	19,871	26.5	5	9.9
2172	Handkerchiefs.....	1,629	31.0	1,264	30.8	1,545	31.6	1,034	32.2	5,587	30.3	3,128	33.9	2,369	26.5	5	5.6
315	Synthetic resins, cellulose-plastic, etc., u. e. c.....	3,245	22.6	3,705	24.0	2,919	22.9	3,133	25.9	13,173	26.2	5,500	26.3	7,583	26.1	12	7.8
902	Root and shoe cut stock and findings.....	4,965	24.5	5,152	24.2	4,657	25.5	4,618	27.5	33,518	30.0	24,270	31.9	9,248	26.1	24	4.8
1207	Lighting equipment.....	3,425	17.0	4,573	18.8	2,963	17.8	3,621	21.0	19,808	23.1	8,108	20.3	11,700	25.5	4	8.8
107	Cheese.....	1,174	23.2	1,247	25.5	963	22.2	918	23.3	17,867	18.1	14,171	16.8	3,726	22.2	143	5.5
114	Feeds, prepared, for animals and fowls.....	2,286	14.8	2,656	14.4	1,703	14.4	1,649	14.9	55,375	19.2	40,917	17.7	14,458	24.9	47	10.0
1321	Boiler shops.....	3,024	18.0	4,438	20.2	2,169	16.3	2,761	18.7	15,991	21.9	6,711	18.7	9,280	24.9	7	1.7
909	Lubricating greases, not made in petroleum refineries.....	742	23.1	1,047	21.1	459	23.7	519	22.7	9,261	23.7	5,463	23.8	3,798	24.8	6	3.3
704	Saddlery, harness, and whips.....	930	24.6	952	24.6	858	26.5	768	26.3	3,427	25.7	2,081	26.9	1,346	23.9	4	2.5
1105	Tools, not including edge tools, machine tools, files, or saws.....	3,369	22.4	3,683	20.0	2,878	22.8	2,747	20.7	12,327	23.5	4,371	24.8	7,956	23.5	13	3.8
1621	Synthetic and preserved flowers and plants.....	877	24.4	864	25.7	829	25.8	778	29.8	1,817	20.2	489	14.8	1,328	23.3	4	2.1
1107	Leather goods not elsewhere classified.....	1,048	14.8	1,178	15.6	876	14.6	847	15.6	4,754	18.0	1,919	14.5	2,833	21.6	4	1.0
906	Forgings, iron and steel.....	2,328	16.8	10,278	53.3	2,043	16.7	9,597	63.5	13,549	20.9	6,810	19.6	6,739	21.3	13	7.0
117	Food preparations not elsewhere classified.....	2,772	16.0	2,781	14.4	2,378	16.8	1,943	16.0	50,980	22.9	37,557	23.7	13,423	20.9	27	2.6
627	Insecticides and fungicides, etc., u. e. c.....	311	5.7	445	5.6	230	6.6	276	8.2	8,704	16.3	2,769	11.3	5,935	20.4	4	7.7
1604	Screw-machine products and wood screws.....	3,610	20.9	4,637	21.0	3,105	20.7	3,676	21.9	13,797	21.9	4,735	25.0	7,102	19.6	6	2.0
1015	Brooms.....	813	17.9	648	17.3	773	18.6	539	17.6	2,271	15.9	935	12.5	1,336	19.5	4	1.1
910	Minerals and earths, ground or otherwise treated.....	732	14.8	848	16.0	620	14.6	605	16.7	3,744	17.4	1,365	15.7	2,379	18.5	11	6.8
1618	Trunks, suitcases, and bags.....	1,371	17.9	1,260	15.2	1,263	19.0	998	15.8	4,688	16.6	2,330	15.6	2,338	17.7	6	2.0
910	Hand stamps and stencils and brands.....	616	19.8	721	17.4	496	22.0	491	19.4	1,681	18.0	560	21.1	1,121	16.8	8	2.9
211	Buttons.....	1,248	11.0	1,422	13.5	1,110	10.8	1,112	13.6	4,166	14.9	1,499	12.7	2,757	16.3	6	2.0
211	Waste and related products.....	1,284	12.1	1,263	11.6	1,144	12.4	866	11.8	9,378	14.2	5,218	13.1	3,860	16.2	12	3.8
301	Baskets and rattan and willow ware, not including furniture.....	1,435	14.9	809	14.2	1,371	15.2	673	14.6	2,140	13.4	788	13.8	1,352	15.5	8	4.0
1204	Sheet-metal work, not specifically classified.....	2,362	10.8	2,960	10.4	1,946	11.2	2,270	11.6	19,018	17.4	11,568	20.0	7,450	14.4	5	4.4
1612	Miscellaneous articles not elsewhere classified.....	1,615	9.8	2,003	12.3	1,539	9.8	1,487	12.6	5,524	11.1	1,457	7.0	4,067	14.0	4	6.0
501	Bookbinding and blank-book making.....	2,674	11.0	3,615	12.0	2,291	11.2	2,692	12.3	9,797	13.4	2,928	13.9	6,869	13.1	8	8.8
1210	Jewelry.....	2,226	10.8	2,441	9.9	2,098	12.3	2,054	11.5	6,569	9.3	2,425	8.0	4,144	10.2	4	4.4
1640	Signs and advertising novelties.....	1,577	8.9	2,001	8.8	1,329	9.7	1,480	10.0	5,459	8.9	1,749	7.8	3,810	9.6	44	4.1
205	Concrete products.....	612	5.8	755	6.4	493	5.9	545	7.0	4,197	9.4	1,905	9.5	2,292	9.2	37	3.0
908	Pocketbooks, purses, and cardcases.....	780	6.2	655	5.6	740	6.4	582	6.3	3,477	8.1	1,606	7.2	1,871	9.0	4	1.3
213	Housefurnishings.....	1,267	7.6	1,134	7.4	1,125	7.8	912	8.4	5,809	6.7	3,214	5.8	2,655	8.4	7	9.9
214	Furnishing goods, men's.....	1,375	5.6	1,077	5.0	1,305	5.7	920	5.4	6,949	7.7	3,796	7.9	3,153	7.6	4	5.4
1615	Fur goods.....	279	1.7	614	2.1	237	1.9	473	2.3	3,697	2.6	2,549	2.9	1,138	2.1	4	2.2
INDUSTRIES FOR WHICH NO CONCENTRATION DATA ARE SHOWN <sup>3</sup>																	
362	Billiard and pool tables, bowling alleys, etc.....	364	.....	383	.....	314	.....	290	.....	3,145	.....	1,056	.....	2,089	.....	17	.....
712	Fuel briquettes.....	415	.....	533	.....	341	.....	386	.....	4,973	.....	3,394	.....	1,519	.....	25	.....
1406	Locomotives, other than electric.....	4,734	.....	5,935	.....	3,790	.....	3,972	.....	17,383	.....	9,493	.....	7,890	.....	14	.....
1215	Smelting and refining, copper.....	14,879	.....	14,023	.....	10,449	.....	11,154	.....	348,257	.....	310,797	.....	37,460	.....	20	.....
1216	Smelting and refining, lead.....	3,719	.....	4,595	.....	3,187	.....	3,424	.....	137,219	.....	121,967	.....	15,223	.....	16	.....
1220	Tin and other foils, not including gold foil.....	2,138	.....	2,429	.....	1,831	.....	1,869	.....	14,533	.....	8,226	.....	5,307	.....	11	.....

\* Large industries, those employing more than 100,000 persons; medium industries, those employing 25,000 to 100,000 persons; small industries, those employing less than 25,000 persons.

<sup>1</sup> Includes cost of materials, mill and shop supplies, containers, fuel, and purchased electric energy.

<sup>2</sup> Value of products less cost of materials, containers, fuel, and purchased electric energy.

<sup>3</sup> The data for the largest 4 enterprises are combined with those for the largest 8 enterprises in order to avoid approximate disclosures of individual data.

<sup>4</sup> The data for the "remainder" of the industry are included in the data for the largest 8 enterprises in order to avoid approximate disclosures of individual data.

<sup>5</sup> In order to avoid the approximate disclosure of data for individual enterprises, no information is given for the largest 4 and the largest 8 enterprises in these industries.



1935, based on value added by manufacture—Continued

ands of dollars]

Eight largest producers																Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.		Value added by manufacturer		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
109 SMALL INDUSTRIES—Continued																	
1,618	43.8	1,806	44.0	1,407	46.9	1,247	46.0	9,403	46.3	5,932	48.6	3,471	42.8	25	7.8	Window shades (textile and paper) and fixtures.....	1651
2,999	42.7	3,959	41.2	2,862	44.5	3,308	48.8	8,138	38.1	2,156	33.1	5,982	40.3	16	9.6	Furs, dressed and dyed.....	1656
1,219	27.5	2,006	30.9	757	26.8	9,882	32.4	16,389	39.1	6,064	35.1	10,775	42.9	8	2.0	Cleaning and polishing preparations.....	1660
8,586	41.7	11,414	40.9	6,506	42.8	7,534	42.9	29,383	43.0	9,156	44.6	20,227	42.3	16	5.7	Instruments and apparatus, professional, scientific, commercial, and industrial.....	1629
145	36.8	333	48.0	101	36.2	204	46.7	874	45.1	356	47.5	518	43.6	8	16.8	Theatrical scenery and stage equipment.....	1646
242	35.9	258	42.2	209	36.5	167	39.5	776	47.2	359	58.8	417	40.3	8	11.0	Feathers, plumes, and manufactures thereof.....	1613
9,326	45.1	7,993	42.2	8,292	47.5	5,363	48.9	58,356	41.6	39,760	42.6	18,596	39.5	168	25.1	Fertilizers.....	614
918	39.4	994	37.2	789	42.1	634	36.4	3,556	41.0	1,633	40.4	1,903	41.7	10	7.1	Window and door screens and weather strip.....	318
4,008	42.3	2,740	38.4	3,407	42.9	1,991	39.3	36,246	39.0	30,736	40.1	5,510	33.8	193	34.3	Poultry dressing and packing, wholesale.....	126
3,344	25.5	3,756	23.3	2,640	27.3	2,460	28.7	48,655	40.7	15,499	34.8	33,156	44.2	10	1.8	Perfumes, cosmetics, and other toilet preparations.....	628
2,505	47.6	2,041	49.7	2,353	48.1	1,629	50.7	8,771	47.6	5,062	53.3	3,509	41.5	9	10.1	Handkerchiefs.....	2172
5,251	36.6	5,563	38.6	4,689	36.8	4,845	40.1	22,326	44.4	10,011	47.1	12,515	42.4	20	33.1	Synthetic-resin, cellulose-plastic, etc., n. e. c.....	315
5,821	28.7	6,225	29.3	5,434	29.7	5,480	32.7	46,846	42.0	35,911	47.2	10,935	30.8	32	6.4	Boot and shoe cut stock and findings.....	902
5,290	26.3	7,025	28.9	4,652	27.9	5,570	32.3	29,831	34.8	13,750	34.5	16,081	35.1	8	1.6	Lighting equipment.....	1267
1,426	28.7	1,300	30.7	1,177	27.1	1,123	28.5	22,245	22.5	17,829	21.2	4,416	29.8	189	7.3	Cheese.....	107
3,571	21.8	4,194	22.8	2,562	22.1	2,689	24.3	99,068	34.7	29,453	34.4	19,003	33.8	62	6.6	Feeds, prepared, for animals and fowls.....	114
4,638	27.6	6,351	29.0	3,575	26.9	4,228	26.6	25,914	32.7	11,816	32.9	12,098	32.5	14	3.4	Boiler shops.....	3221
1,072	33.3	1,469	29.6	725	37.5	834	36.5	14,472	40.1	9,166	44.1	5,306	34.6	13	7.2	Lubricating greases, not made in petroleum refineries.....	704
1,340	35.5	1,765	35.2	1,209	37.4	1,096	37.5	5,043	37.8	3,114	40.3	1,929	34.3	8	5.0	Saddlery, harness, and whips.....	909
5,131	34.1	5,827	31.7	4,428	35.1	4,483	33.8	18,981	36.2	6,878	36.8	12,103	33.8	17	5.0	Tools, not including edge tools, machine tools, files, or saws.....	1125
1,125	31.3	1,136	34.2	1,043	32.5	958	36.7	3,166	35.2	1,315	39.8	1,851	32.5	9	4.7	Artificial and preserved flowers and plants.....	1601
1,566	22.1	1,685	22.7	1,341	22.3	1,290	23.2	6,967	26.5	3,238	24.4	3,759	28.7	8	2.0	Leather goods not elsewhere classified.....	906
4,188	29.5	12,775	66.2	3,641	29.7	11,608	76.8	21,531	52.4	11,251	52.4	10,280	32.5	19	10.3	Forgings, iron and steel.....	1107
4,783	27.6	4,750	24.6	4,249	30.1	3,646	30.1	97,543	43.8	80,391	50.7	17,152	26.7	186	18.1	Food preparations not elsewhere classified.....	1117
711	13.0	1,004	12.6	331	15.3	512	15.1	12,962	24.3	4,342	17.8	8,620	29.6	8	1.4	Insecticides and fungicides, etc., n. e. c.....	627
6,083	35.2	7,277	33.0	5,286	35.2	5,752	34.2	20,725	32.9	9,854	37.1	10,571	29.8	12	4.0	Screw-machine products and wood screws.....	1117
1,074	23.6	925	24.7	1,010	24.3	758	24.7	3,263	22.8	1,370	18.3	1,863	27.6	9	2.6	Rooms.....	1604
1,398	28.2	1,544	29.2	1,205	28.3	1,075	29.7	6,170	28.6	2,056	23.7	4,114	32.0	15	9.3	Minerals and earths, ground or otherwise treated.....	1015
2,066	27.0	2,109	25.5	1,907	28.7	1,692	26.7	7,451	26.4	3,824	25.6	3,627	27.2	10	3.3	Trunks, suitcases, and bags.....	910
929	29.8	1,132	27.3	747	30.1	783	30.9	2,666	28.9	882	33.2	1,114	27.2	15	5.1	Hand stamps and stencils and brands.....	1618
2,942	25.9	2,832	27.1	2,700	26.2	2,302	28.2	7,579	29.0	2,937	26.5	4,642	27.4	15	5.1	Buttons.....	1606
1,879	17.2	1,968	18.2	1,679	18.2	1,331	18.1	15,934	24.1	10,680	25.3	5,254	22.1	16	5.1	Waste and related products.....	211
2,536	24.3	1,458	25.6	2,219	24.6	1,176	25.5	3,710	25.6	1,461	23.5	2,249	25.7	14	6.9	Baskets and rattan and willow ware, not including furniture.....	301
3,184	14.6	4,148	14.4	2,511	14.5	2,810	14.4	28,905	26.4	28,408	31.9	10,497	20.4	39	2.8	Sheet-metal work, not specifically classified.....	1204
2,782	16.9	3,079	18.9	2,472	17.4	2,359	19.9	9,298	18.7	3,675	17.8	5,593	19.3	10	1.5	Miscellaneous articles not elsewhere classified.....	1612
4,124	17.0	5,412	17.9	3,408	16.7	3,862	17.7	15,111	20.6	4,874	23.1	10,237	19.6	14	1.4	Bookbinding and blank-book making.....	501
3,291	15.9	3,710	15.0	2,922	17.4	3,016	16.9	10,945	15.4	4,410	14.6	6,535	16.1	8	.8	Jewelry.....	1210
2,735	15.4	3,352	14.8	2,270	16.6	2,493	16.5	9,655	14.7	3,122	14.7	5,913	14.8	51	4.8	Signs and advertising novelties.....	1640
962	9.1	1,313	10.8	804	9.6	894	11.4	6,782	15.1	3,330	16.6	3,452	13.9	45	3.7	Concrete products.....	1005
1,732	13.8	1,615	13.9	1,501	13.9	1,291	14.0	6,795	15.8	3,579	16.1	3,216	15.5	9	2.8	Pocketbooks, purses, and carcases.....	908
2,065	12.4	1,780	11.6	1,876	13.0	1,492	13.3	9,931	11.4	5,737	10.4	4,194	13.2	13	1.7	Furniture furnishings.....	218
2,569	9.6	1,966	9.2	2,248	9.9	1,697	9.9	11,151	12.4	5,854	12.2	5,267	12.7	8	1.0	Furnishing goods, men's.....	214
493	3.0	1,012	3.5	451	3.4	516	3.9	6,414	4.5	4,535	5.1	1,879	3.4	8	.4	Fur goods.....	1615

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## APPENDIX 8.—SUMMARY OF CONCENTRATION DATA, CLASSIFICATION, AND PRICE DATA FOR MANUFACTURING INDUSTRIES, 1935<sup>1</sup>

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The following table indicates the classifications to which the manufacturing industries have been assigned and the data used in analyses of prices and degree of concentration.

Under the column "Size code" the letters L, M, and S indicate large industries (L) employing 100,000 or more persons, medium industries (M) employing between 25,000 and 100,000 persons, and small industries (S) employing less than 25,000 persons.

The next column indicates the durability of the products of each industry. The basis for classification is that used in the report of the National Bureau of Economic Research *Commodity Flow and Capital Formation*. Nondurable or perishable products are those that, without marked change and retaining their essential physical identity, are ordinarily employed in their ultimate use less than 6 months. Semidurable products are those that, without marked change and retaining their essential physical identity are ordinarily employed in their ultimate use from 6 months to 3 years. Durable products are those that normally render successive services and are ordinarily employed in their ultimate use over a period longer than 3 years.

The next column classifies industries into finished or semimanufactured categories. Products which move to the ultimate consumer with no further processing are classified as finished and those which are used as materials by other manufacturers are classified as semimanufactured.

The concentration index represents for each industry the proportion of the total value of product for the industry contributed by the largest four producers.

The value added ratios for 1929 and 1935 represent the ratio between value added by manufacture and value of product for the industry.

Under "Type of market," industries are classified into three groups: Those selling to a local market, those selling to a regional market, and those selling to a national market.

The column giving location determinant classifies industries into three groups: Those industries the location of which is largely determined by the location of the consumer, those which are situated close to the raw materials, and the remaining industries classified under "Other determinants."

Under "Type of industry" two categories are used: straight and mixed. Industries classified as straight are those in which each manufacturer as a rule engages in the production of all commodities covered by the industry classification. Industries in which the manufacturers confine themselves to the production of only part of the commodities included in the industry are classified as mixed.

The price ratios were computed from Bureau of Labor Statistics prices for 1929 and 1932. Prices of manufactured goods were assigned to the proper industry. Where more than one price item appeared for an industry, the Bureau of Labor Statistics weights were used for each item to derive a weighted average price for the industry.

Under reliability of price data notations of "Adequate," "Fair," and "Poor" are used to describe the adequacy of the price data insofar as they can be used to typify the prices of products of an entire Census industry.

<sup>1</sup> Appendix 8 was prepared by Grace W. Knott.

TABLE I.—Summary of data for manufacturing industries, 1935

Industry number	Name of industry	Size code	Classification by durable, semidurable, and nondurable	Classification by semimanufactured and finished	Concentration index	Value added ratio 1929	Value added ratio 1935	Average value added 1929-35	Type of market	Location determinant	Type of industry	Price ratio 1932/29	Reliability of price data in relation to Census classification
<b>FOOD AND KINDRED PRODUCTS</b>													
101	Beverages, nonalcoholic.....	N	Nondurable.....	Finished.....	8.7	61.9	61.0	61.5	Local.....	Consumer.....	Straight.....	87.5	Fair.
102	Bread and other bakery products.....	N	do.....	do.....	18.2	51.7	45.8	48.8	do.....	do.....	Mixed.....	90.6	Adequate.
103	Butter.....	N	do.....	do.....	17.2	14.8	13.6	15.2	National.....	Raw material.....	Straight.....	46.9	Do.
104	Canned and preserved fish, crabs, etc.....	N	do.....	do.....	26.9	34.1	35.3	34.7	do.....	do.....	Mixed.....	62.6	Do.
105	Canned and dried fruits and vegetables, etc.....	N	do.....	do.....	22.7	38.4	37.0	37.7	do.....	do.....	Straight.....	67.7	Do.
106	Cereal preparations.....	N	do.....	do.....	68.1	42.1	43.8	43.0	do.....	Other.....	Mixed.....	55.6	Fair.
107	Cheese.....	N	do.....	do.....	18.6	16.2	15.0	15.6	do.....	Raw material.....	Straight.....	52.7	Adequate.
108	Chewing gum.....	N	do.....	do.....	92.0	61.4	68.6	65.0	do.....	Other.....	do.....	do.....	do.....
109	Chocolate and cocoa products.....	N	do.....	do.....	67.8	33.4	28.6	31.0	do.....	do.....	do.....	41.3	Do.
111	Condensed and evaporated milk.....	N	do.....	do.....	44.6	21.7	23.6	22.7	do.....	Raw material.....	do.....	73.7	Fair.
112	Confectionery.....	M	do.....	do.....	12.5	45.3	40.9	43.1	do.....	Other.....	do.....	do.....	do.....
113	Corn sirup, corn sugar, corn oil and starch.....	N	do.....	do.....	79.2	37.2	32.2	34.7	do.....	Raw material.....	do.....	60.6	Adequate.
114	Feeds prepared for animals and fowls.....	N	do.....	do.....	29.0	18.6	20.1	19.4	Regional.....	do.....	do.....	do.....	do.....
115	Flavoring extracts and flavoring sirup.....	N	do.....	do.....	47.7	57.0	57.0	57.0	National.....	Other.....	do.....	do.....	do.....
116	Flour and other grain-mill products.....	M	do.....	do.....	29.4	18.1	16.1	17.1	do.....	do.....	do.....	53.8	Do.
117	Food preparations, n. e. c.....	N	do.....	do.....	43.7	41.9	28.8	39.1	do.....	do.....	Mixed.....	do.....	do.....
118	Ice cream.....	N	do.....	do.....	32.7	52.5	51.8	52.2	Local.....	Consumer.....	Straight.....	do.....	do.....
119	Ice, manufactured.....	M	do.....	do.....	20.7	81.1	78.2	79.7	do.....	do.....	do.....	45.8	Fair.
120	Shortenings.....	N	do.....	do.....	69.0	10.0	16.4	13.2	National.....	Other.....	do.....	65.1	Adequate.
121	Macaroni, spaghetti, vermicelli, and noodles.....	N	do.....	do.....	16.1	41.9	35.7	37.6	do.....	do.....	do.....	do.....	do.....
122	Malt.....	N	do.....	do.....	44.6	19.8	24.9	22.4	do.....	Raw material.....	do.....	do.....	do.....
123	Meat packing, wholesale.....	N	do.....	do.....	55.6	13.4	14.1	13.8	do.....	Other.....	do.....	50.8	Do.
124	Cleaned and dressed meats.....	N	do.....	do.....	49.1	33.6	28.1	30.9	do.....	do.....	do.....	41.3	Do.
126	Poultry killing, dressing, and packing, wholesale.....	N	do.....	do.....	30.5	17.9	17.5	17.7	do.....	Raw material.....	do.....	51.3	Do.
127	Rice cleaning and polishing.....	N	do.....	do.....	38.6	21.2	22.4	21.8	do.....	do.....	do.....	62.7	Do.
128	Sausage, meat pudding, headcheese, etc.....	N	do.....	do.....	35.1	24.8	20.5	22.7	do.....	Other.....	do.....	do.....	do.....
129	Sugar, beet.....	N	do.....	do.....	68.8	34.6	35.2	29.9	do.....	Raw material.....	do.....	do.....	do.....
130	Sugar, cane, not including products of refineries.....	N	do.....	do.....	33.5	33.3	30.4	31.9	do.....	do.....	do.....	76.7	Poor.
131	Sugar refining, cane.....	N	do.....	do.....	69.6	13.6	10.9	12.3	do.....	do.....	do.....	78.4	Adequate.
132	Vinegar and cider.....	N	do.....	do.....	40.4	42.4	44.1	43.3	do.....	do.....	do.....	66.1	Do.
133	Liquors, distilled.....	N	do.....	do.....	61.2	(0)	59.0	do.....	Regional.....	Other.....	do.....	do.....	do.....
134	Liquors, malt.....	M	do.....	do.....	11.8	(0)	66.7	do.....	Regional.....	Other.....	do.....	do.....	do.....
135	Liquors, vinous.....	N	do.....	do.....	26.8	75.1	58.0	66.6	National.....	Raw material.....	do.....	do.....	do.....
136	Liquors, rectified and blended.....	N	do.....	do.....	42.2	(0)	42.8	do.....	do.....	Other.....	do.....	do.....	do.....
<b>TEXTILES AND THEIR PRODUCTS</b>													
201	Carpets and rugs.....	M	Durable.....	do.....	51.1	69.9	51.1	60.5	do.....	do.....	do.....	75.0	Do.
202	Cordage and twine; jute goods; linen goods.....	N	Semidurable.....	do.....	31.3	40.3	49.8	44.6	do.....	do.....	Mixed.....	58.1	Fair.
203	Cotton manufactures.....	L	do.....	do.....	8.4	41.1	39.2	40.2	do.....	do.....	Straight.....	57.8	Adequate.
204	Dyeing and finishing cotton, rayon, and silk.....	N	do.....	do.....	13.9	49.4	54.4	51.9	do.....	do.....	do.....	do.....	do.....
205	Felt goods, except woven felts.....	N	do.....	do.....	61.3	42.3	43.0	42.7	do.....	do.....	do.....	do.....	do.....
206	Hats, felt and straw, except millinery.....	N	do.....	do.....	23.7	46.1	47.7	46.9	do.....	do.....	Mixed.....	do.....	do.....
207	Knit goods.....	N	do.....	do.....	5.3	49.2	48.0	48.6	do.....	do.....	do.....	55.5	Fair.
208	Lace goods.....	L	do.....	do.....	38.2	65.4	60.2	62.8	do.....	do.....	Straight.....	do.....	do.....
209	Rayon manufactures.....	N	do.....	do.....	18.5	43.6	44.0	do.....	do.....	do.....	do.....	do.....	do.....
210	Silk manufactures.....	M	do.....	do.....	11.5	43.6	46.3	do.....	do.....	do.....	do.....	do.....	do.....
211	Waste and related products.....	N	Nondurable.....	do.....	14.9	28.8	36.0	32.4	do.....	do.....	do.....	do.....	do.....
212	Wool and hair manufactures.....	N	Semidurable.....	do.....	21.2	39.2	39.3	39.3	do.....	do.....	do.....	62.6	Adequate.
213	Men's cotton garments.....	N	do.....	do.....	63.2	(0)	59.0	do.....	Regional.....	do.....	Mixed.....	71.4	Fair.
214	Furnishing goods, men's.....	N	do.....	do.....	7.7	44.6	46.6	45.6	do.....	do.....	do.....	do.....	do.....
215	Clothing, men's, youths', and boys'.....	L	do.....	do.....	5.1	51.1	41.9	46.5	do.....	do.....	Straight.....	72.3	Do.
216	Clothing, women's, misses', and children's.....	L	do.....	do.....	1.4	45.3	41.2	43.3	do.....	do.....	Mixed.....	do.....	do.....
217	Gloves and mittens, cloth or cloth and leather.....	N	do.....	do.....	43.9	35.1	45.4	40.3	do.....	do.....	Straight.....	do.....	do.....
2172	Handkerchiefs.....	N	Nondurable.....	do.....	31.8	44.7	39.2	41.9	do.....	do.....	do.....	do.....	do.....
2173	Suspenders, garters, and other elastic woven products.....	N	Semidurable.....	do.....	54.8	41.2	41.5	41.3	do.....	do.....	do.....	do.....	do.....
218	Housefashinings.....	N	do.....	do.....	7.7	40.0	37.9	38.9	do.....	do.....	do.....	60.8	Do.
219	Housefashinings, except products, n. e. c.....	N	do.....	do.....	37.9	23.9	27.9	25.8	do.....	do.....	Mixed.....	do.....	do.....
220	Artificial leather, oilcloth.....	N	do.....	do.....	37.7	33.6	32.4	33.0	do.....	do.....	do.....	81.5	Adequate.
221	Embroideries; trimmings; stamped art goods.....	N	do.....	do.....	9.8	61.1	53.2	57.1	do.....	do.....	do.....	do.....	do.....
222	Asphalted-felt-base floor covering; linoleum.....	N	Durable.....	do.....	81.6	53.1	54.3	53.7	do.....	do.....	Straight.....	73.4	Do.
<b>FOREST PRODUCTS</b>													
301	Baskets and rattan and willow ware.....	N	Semidurable.....	do.....	15.1	61.4	60.4	60.9	do.....	do.....	do.....	do.....	do.....
302	Billiard and pool tables, bowling alleys, etc.....	N	Durable.....	do.....	(0)	63.3	66.4	64.8	do.....	do.....	do.....	do.....	do.....
303	Boxes, cigar, wooden and part wooden.....	N	Semidurable.....	do.....	42.1	37.9	63.8	60.8	do.....	do.....	do.....	87.5	Do.
304	Boxes, wooden, except cigar boxes.....	N	do.....	do.....	17.3	45.1	49.5	47.5	Regional.....	National.....	do.....	do.....	do.....
305	Caskets, coffins, burial cases and other mortician's goods.....	N	Durable.....	do.....	17.6	55.5	55.2	55.4	National.....	do.....	Mixed.....	97.0	Do.
306	Couperage.....	N	Semidurable.....	do.....	25.9	36.0	35.6	35.8	Regional.....	do.....	Straight.....	do.....	do.....
307	Cork products.....	N	Semimanufactured.....	do.....	67.0	51.3	49.8	50.5	do.....	do.....	do.....	49.2	Do.
308	Excelsior.....	N	Nondurable.....	do.....	67.0	31.3	57.8	54.5	do.....	Raw material.....	do.....	do.....	do.....
309	Furniture, including store and office fixtures.....	L	Durable.....	do.....	5.6	53.0	52.1	53.5	do.....	Other.....	Mixed.....	do.....	do.....
310	Laists and related products.....	N	Semidurable.....	Semimanufactured.....	51.2	69.9	73.6	71.7	do.....	do.....	Straight.....	64.3	Fair.
311	Lumber and timber products, n. e. c.....	L	Durable.....	do.....	4.7	67.1	62.3	64.7	do.....	Raw material.....	do.....	120.3	Adequate.
312	Matches.....	N	Nondurable.....	do.....	70.3	38.4	37.5	37.9	do.....	Other.....	do.....	do.....	do.....
313	Mirror and picture frames.....	N	Durable.....	do.....	17.0	66.0	57.7	61.8	do.....	do.....	do.....	do.....	do.....
314	Planing-mill products.....	M	do.....	Semimanufactured.....	4.6	46.5	44.6	45.5	Regional.....	Raw material.....	do.....	72.4	Fair.

For footnotes, see end of table.

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TABLE I.—Summary of data for manufacturing industries, 1935—Continued

Industry number	Name of industry	Size code	Classification by durable, semidurable, and nondurable	Classification by semimanufactured and finished	Concentration in- dex	Value added ratio 1929	Value added ratio 1935	Average value ad- ded 1929-1935	Type of market	Location determinant	Type of industry	Price ratio 1932/29	Reliability of price data in relation to Census classification
<b>FOREST PRODUCTS—continued</b>													
315	Synthetic-resin, cellulose-plastic, etc.	N	Semidurable	Finished	27.6	(9)	57.8	66.8	National	Other	Mixed		
317	Tarpetine and rosin	N	Semidurable	Semimanufactured	71.7	61.9	66.8	66.8	do.	Raw material	Straight		
318	Window and doors, screens and weather strip	N	Durable	Finished	26.9	57.0	52.7	54.8	do.	Other	do.		
319	Wood preserving	N	do.	Semimanufactured	50.5	22.6	26.6	24.1	do.	Raw material	do.		
320	Wood turned and shaped and other wooden goods	N	do.	Finished	23.6	59.2	55.6	57.8	do.	Other	Mixed		
<b>PAPER AND ALLIED PRODUCTS</b>													
401	Bags, paper	S	Nondurable	do.	34.8	33.1	36.4	34.7	do.	do.	Straight		
402	Boxes, paper, n. e. c.	M	do.	do.	14.1	45.7	43.6	44.6	do.	do.	do.		
403	Cardboard, not made in paper mills	N	do.	Semimanufactured	61.9	52.7	47.3	50.0	do.	do.	do.		
404	Card cutting and desizing	N	do.	do.	62.7	52.7	47.3	50.0	do.	do.	do.		
405	Envelopes	N	do.	Finished	33.6	51.2	52.4	51.8	do.	do.	do.		
407	Paper	L	do.	Semimanufactured	14.7	40.6	39.7	40.1	do.	do.	do.	84.4	Adequate.
408	Paper goods, n. e. c.	M	do.	Finished	14.2	45.1	43.9	44.5	do.	do.	do.		
410	Pulp (wood and other fiber)	M	do.	Semimanufactured	22.7	37.7	42.5	40.1	do.	Raw material	do.	64.3	Do.
411	Wall paper	N	do.	Finished	41.4	55.1	49.7	52.4	do.	Other	do.		
<b>PRINTING, PUBLISHING, AND ALLIED INDUSTRIES</b>													
501	Bookbinding and blankbook making	N	do.	do.	13.7	70.1	71.2	70.7	Local	Consumer	do.		
503	Engraving (other than steel, copper- plate, and wood), chasing, etc.	N	do.	do.	62.2	76.4	64.8	70.6	National	Other	do.		
504	Engraving, steel, copperplate, and wood, and plate printing	N	do.	do.	33.9	74.8	77.2	76.0	Local	Consumer	do.		
506	Lithography	N	do.	do.	14.2	67.8	62.7	65.3	do.	do.	do.		
507	Photocopying, not done in print- ing establishments	N	do.	do.	13.8	85.8	83.5	84.7	do.	do.	do.		
508	Printing and publishing, book, music, and job	L	do.	do.	4.4	73.5	66.5	70.0	National	Other	Mixed		
510	Printing and publishing, newspaper and periodical	L	do.	do.	20.3	73.5	74.6	76.1	Local	Consumer	do.		
512	Stereotyping and electrotyping	S	do.	do.	36.0	81.6	86.1	83.9	do.	do.	Straight		
<b>CHEMICALS AND ALLIED PRODUCTS</b>													
602	Ammunition and related products	N	do.	do.	92.0	54.7	61.2	58.0	National	Other	do.		
603	Baking powder, yeast, and other leav- ening compounds	N	do.	do.	57.1	56.8	55.5	56.2	do.	do.	do.	95.6	Do.
604	Blacking, stains, and dressings	N	do.	do.	39.2	66.2	53.2	59.7	do.	do.	do.		
605	Bluing	N	do.	do.	85.1	65.6	68.6	67.1	do.	do.	do.		
606	Bone black, carbon black, and lamp black	N	do.	Semimanufactured	81.0	54.9	63.9	59.4	do.	Raw material	Mixed	43.7	Do.
607	Candles	N	do.	Finished	61.1	51.4	49.3	50.4	do.	Other	Straight		
608	Chemicals, n. e. c.	M	do.	Semimanufactured	37.1	50.7	50.7	50.7	do.	do.	Mixed	87.3	Poor.
609	Cleaning and polishing preparations	N	do.	Finished	28.0	61.8	59.3	60.6	do.	do.	do.		
610	Compressed and liquefied gases	N	do.	do.	79.2	72.2	73.3	72.8	Local	Consumer	Straight		
611	Drugs and medicines	M	do.	do.	23.4	64.9	71.4	68.2	National	Other	Mixed	89.2	Do.
612	Drug grinding	N	do.	Semimanufactured	87.8	41.3	42.8	42.1	do.	do.	Straight		
613	Explosives	N	do.	Finished	82.0	56.2	58.2	57.2	do.	do.	do.		
614	Fertilizers	N	do.	do.	25.9	31.3	33.5	32.4	Regional	do.	Mixed	72.2	Fair.
615	Fireworks	N	do.	do.	52.8	62.6	59.6	61.1	National	do.	Straight		
616	Glue and gelatin	N	do.	do.	37.3	41.5	46.5	44.0	do.	do.	do.		
617	Grease and tallow	N	do.	do.	28.7	34.8	39.6	37.2	do.	do.	do.		
618	Ink, printing	N	do.	do.	49.0	55.0	46.2	50.6	do.	do.	do.		
619	Ink, writing	N	do.	do.	83.0	56.6	58.2	57.4	do.	do.	do.		
621	Mucilage, paste, and other adhesives	N	do.	do.	35.6	44.7	54.7	49.7	do.	do.	do.		
622	Oil, cake, and meal, cottonseed	N	do.	do.	32.9	16.5	14.6	15.6	do.	Raw material	do.	37.4	Do.
623	Oil, cake, and meal, linseed	N	do.	do.	87.9	15.3	19.0	17.2	do.	do.	do.	62.1	Adequate.
624	Oils, essential	N	do.	Semimanufactured	98.3	42.8	26.5	34.7	do.	Other	do.		
625	Oils, n. e. c.	N	do.	do.	42.6	18.3	30.6	24.5	do.	do.	Mixed		
626	Paints, pigments, and varnishes	N	do.	Finished	32.3	41.3	44.4	42.9	do.	do.	do.	71.4	Do.
627	Isocellulose and fungicides	N	do.	do.	16.6	(9)	54.1	do.	do.	do.	do.		
628	Perfumes, cosmetics, and other toilet preparations	N	do.	do.	25.3	69.9	62.7	66.3	do.	do.	do.		
629	Rayon and allied products	N	do.	Semimanufactured	74.3	77.7	65.1	71.4	do.	do.	Straight	51.7	Do.
630	Salt	N	do.	Finished	60.3	63.1	63.2	63.3	do.	Raw material	do.	104.5	Do.
631	Soap	N	do.	do.	73.5	41.9	41.7	41.8	do.	Other	do.	76.2	Do.
632	Tanning materials, natural dyestuffs, etc.	N	do.	Semimanufactured	33.9	36.4	41.4	38.9	do.	do.	do.	53.1	Poor.
633	Wood distillation and charcoal manu- facture	N	do.	do.	53.5	50.0	48.4	50.2	do.	Raw material	do.	72.5	Fair.
<b>PRODUCTS OF PETROLEUM AND COAL</b>													
701	Coke-oven products	N	do.	Finished	48.8	32.4	24.4	28.4	Regional	Other	Mixed	92.6	Adequate.
702	Fuel briquettes	N	do.	do.	(9)	37.7	30.9	34.3	do.	do.	Straight		
703	Gas, manufactured	N	do.	do.	37.6	63.2	71.7	67.5	Local	Consumer	do.		
704	Lubricating greases	N	do.	do.	26.0	43.1	42.4	42.8	National	Other	do.		
705	Petroleum refining	M	do.	do.	38.2	23.0	19.6	21.3	do.	do.	do.	61.7	Do.
<b>RUBBER PRODUCTS</b>													
801	Boots and shoes, rubber	N	Semidurable	do.	81.8	66.5	61.0	63.8	do.	do.	do.		
802	Rubber goods, other than tires, etc.	N	do.	do.	19.2	53.1	53.8	53.5	do.	do.	do.		
803	Rubber tires and inner tubes	M	do.	do.	80.9	44.2	49.5	42.4	do.	do.	do.		
<b>LEATHER AND ITS MANUFACTURES</b>													
901	Belt and packing, leather	N	do.	do.	39.9	42.0	46.3	41.2	do.	do.	do.	87.5	Fair.
902	Boot and shoe cut stock and findings	N	do.	Semimanufactured	32.2	19.4	27.3	23.1	do.	do.	do.		
903	Boots and shoes, other than rubber	N	do.	Finished	26.0	46.2	48.8	47.5	do.	do.	Mixed	70.1	Do.
905	Gloves and mittens, leather	N	do.	do.	14.4	48.4	52.3	50.4	do.	do.	Straight		

TABLE I. Summary of data for manufacturing industries, 1935—Continued

Industry number	Name of industry	Size code	Classification by durable, semidurable, and nondurable	Classification by semimanufactured and finished	Concentration index	Value added ratio 1929	Value added ratio 1935	Average value added 1929-1935	Type of market	Location determinant	Type of industry	Price ratio 1932/29	Reliability of price data in relation to Census classification
<b>LEATHER AND ITS MANUFACTURES—continued</b>													
906	Leather goods, n. e. c.	S	Semidurable	Finished	19.1	49.9	49.7	49.8	National	Other	Mixed		
907	Leather, tanned, curried and finished	M	do.	Semimanufactured	22.5	29.8	35.8	32.8	do.	do.	Straight	59.4	Adequate.
908	Pocketbooks, purses, and card cases	S	do.	Finished	8.4	48.5	48.2	48.4	do.	do.	do.		
909	Saddlery, harness and whips	S	do.	do.	26.0	40.7	42.1	41.4	do.	do.	do.	83.1	Fair.
910	Trunks, suitcases and bags	S	do.	do.	17.2	36.4	47.2	48.5	do.	do.	do.	77.4	Adequate.
<b>STONE, CLAY, AND GLASS PRODUCTS</b>													
1001	Asbestos products other than steam packings, etc.	S	Durable	do.	64.1	54.8	55.0	54.9	do.	do.	do.		
1002	Cement	S	do.	Semimanufactured	29.9	64.4	64.3	64.4	Regional	do.	do.	67.1	Fair.
1003	China firing and decorating	S	do.	Finished	180.3	58.8	49.1	54.0	National	do.	do.		
1004	Clay products (other than pottery) and nonclay refractories	M	do.	do.	19.3	72.3	68.5	70.1	Regional	Other	Mixed	82.8	Poor.
1005	Concrete products	S	do.	do.	10.2	63.4	55.3	91.1	do.	do.	Straight	80.8	
1008	Glass	M	do.	do.	44.9	66.0	61.3	63.7	National	do.	do.	91.4	Fair.
1010	Graphite, ground and refined	S	do.	Semimanufactured	86.1	61.2	55.6	58.4	do.	do.	do.		
1013	Lime	S	do.	do.	22.7	61.4	61.7	61.5	Regional	Raw material	do.	86.2	Adequate.
1014	Marble, granite, slate and other stone	S	do.	Finished	9.5	70.0	67.7	68.9	do.	do.	Mixed		
1015	Minerals and earths, ground and otherwise treated	S	do.	Semimanufactured	18.8	46.0	59.7	52.9	National	do.	do.		
1016	Mirrors and other glass products	S	do.	Finished	55.4	50.9	57.6	54.3	do.	Other	Straight		
1017	Pottery, including porcelain ware	M	do.	do.	19.0	75.6	73.1	74.4	do.	do.	Mixed	80.1	Fair.
1018	Sand-lime brick	S	do.	do.	63.1	68.2	58.9	63.6	Regional	do.	Straight	78.6	Adequate.
1019	Statuary and art goods	S	do.	do.	34.6	79.6	77.0	78.3	National	do.	do.		
1020	Wall board and plaster, etc.	S	do.	do.	54.0	59.9	62.4	61.2	do.	do.	do.	108.7	Do.
1021	Abrasive wheels, stones, paper, and cloth	S	do.	do.	67.4	61.3	61.5	61.4	do.	do.	do.		
1022	Gypsum products	S	do.	do.	76.1	(1)	66.5		do.	Raw material	do.		
<b>IRON AND STEEL AND THEIR PRODUCTS</b>													
1101	Bolts, nuts, washers, and rivets	S	do.	do.	33.6	56.8	49.4	53.1	do.	Other	do.	81.8	Fair.
1102	Cut-iron pipe and fittings	S	do.	do.	42.4	57.3	60.9	59.1	do.	do.	do.	82.9	Adequate.
1103	Cutlery and edge tools	S	do.	do.	37.3	81.2	75.4	78.3	do.	do.	Mixed	91.3	Fair.
1104	Doors, shutters, and window sash and frame, molding and trim, metal	S	do.	do.	33.3	58.2	56.2	57.2	do.	do.	Straight		
1105	Files	S	do.	do.	87.8	78.4	75.7	77.1	do.	do.	do.	100.0	Adequate.
1106	Firearms	S	do.	do.	81.9	81.3	73.9	77.6	do.	do.	do.		
1107	Forgings, iron and steel	S	do.	Semimanufactured	21.0	54.2	47.7	51.0	Regional	do.	do.		
1108	Galvanizing and other coating	S	do.	do.	37.1	48.6	61.4	55.0	National	do.	do.		
1109	Black-iron pipe and fittings	M	do.	Finished	36.4	67.6	63.7	65.9	do.	do.	Mixed		
1110	Black-iron castings	S	do.	Semimanufactured	66.0	20.9	19.8	20.9	do.	do.	Straight	76.5	Poor.
1112	Steel-works and rolling-mill products	L	do.	do.	49.3	43.4	42.5	43.0	do.	do.	do.	82.3	Adequate.
1113	Nails, spikes, etc.	S	do.	Finished	48.3	53.7	55.1	54.4	do.	do.	do.	79.7	Fair.
1114	Plumbers' supplies, not including pipe or vitreous-china sanitary ware	S	do.	do.	31.3	62.2	57.9	60.1	do.	do.	do.	78.2	Do.
1115	Sales and vaults	S	do.	do.	84.8	67.0	63.7	65.4	do.	do.	do.		
1116	Saws	S	do.	do.	61.4	69.6	69.6	69.6	do.	do.	do.	95.1	Adequate.
1117	Screw-machine products and wood-screws	S	do.	do.	22.2	62.8	57.8	60.3	do.	do.	do.		
1118	Springs, steel except wire	S	do.	Semimanufactured	53.6	45.6	39.4	42.5	do.	do.	do.		
1119	Steam and hot-water heating apparatus and steam fittings	M	do.	Finished	38.7	68.2	66.5	67.4	Regional	do.	do.	56.1	Fair.
1120	Steel barrels, kegs, and drums	S	do.	do.	37.0	41.9	39.3	40.6	do.	do.	do.	70.0	Adequate.
1121	Stoves and ranges and warm-air furnaces	M	do.	do.	16.1	62.9	59.1	61.0	National	do.	Mixed	83.7	Fair.
1122	Structural and ornamental metal work	M	do.	do.	24.5	48.7	42.4	45.6	Regional	do.	do.		
1123	Tin cans and other tinware	M	Semidurable	do.	80.8	34.3	29.5	31.9	National	do.	do.	91.7	Do.
1126	Tools	S	Durable	do.	23.9	67.7	64.4	66.1	do.	do.	Straight	89.4	Do.
1126	Wire drawn from purchased rods	S	do.	Semimanufactured	40.2	28.0	45.2	37.1	do.	do.	do.		
1127	Wirework, n. e. c.	S	do.	Finished	22.1	53.6	52.7	53.2	do.	do.	Mixed	87.5	Poor.
1128	Wrought pipe, welded and heavy riveted	M	do.	do.	47.4	43.7	43.1	43.4	Regional	do.	Straight	94.1	Fair.
1129	Stamped and pressed metal products, etc.	M	do.	do.	12.0	57.1	51.5	54.3	National	do.	Mixed		
<b>NONFERROUS METALS AND THEIR PRODUCTS</b>													
1201	Aluminum products	S	do.	Semimanufactured	76.0	38.7	43.9	41.3	do.	do.	Straight		
1202	Clocks, watches, time-recording devices, etc.	S	do.	Finished	37.7	74.7	63.2	69.0	do.	do.	Mixed		
1203	Collapsible tubes	S	Nondurable	do.	52.8	39.6	41.6	40.6	do.	do.	Straight		
1204	Sheet-metal work, not specifically classified	S	Durable	do.	17.8	49.4	47.2	48.3	Local	Consumer	Mixed		
1205	Electroplating	S	do.	Semimanufactured	12.1	79.8	74.9	77.4	National	Other	Straight		
1206	Fire extinguishers, chemical	S	do.	Finished	77.4	51.7	53.7	52.4	do.	do.	do.		
1207	Lighting equipment	S	do.	do.	24.4	60.1	53.4	56.8	Regional	do.	do.		
1208	Gold leaf and foil	S	do.	Semimanufactured	73.5	51.4	46.2	48.8	National	do.	do.		
1209	Gold, silver, and platinum refining and alloying	S	do.	do.	65.1	9.4	8.0	8.7	do.	do.	do.		
1210	Jewelry	S	do.	Finished	9.5	55.0	57.3	56.2	do.	do.	Mixed		
1211	Needles, pins, hooks and eyes, and snap fasteners	S	do.	do.	63.4	71.9	71.7	71.8	do.	do.	Straight		
1212	Nonferrous metal alloys and nonferrous metal products	M	do.	Semimanufactured	37.8	84.0	84.1	39.1	do.	do.	Mixed	51.1	Fair.
1213	Silverware and plated ware	S	do.	Finished	55.6	68.7	64.9	66.8	do.	do.	do.		
1215	Smelting and refining, copper	S	do.	Semimanufactured	(1)	7.5	10.8	9.2	do.	Raw material	Straight		
1216	Smelting and refining, lead	S	do.	do.	(1)	12.1	11.1	11.6	do.	do.	do.		
1217	Smelting and refining, nonferrous metals other than gold, silver, and platinum	S	do.	do.	12.6	21.2	16.9	19.1	do.	Other	do.		
1218	Smelting and refining, zinc	S	do.	do.	61.0	37.1	37.0	37.1	do.	do.	do.	18.5	Adequate.
1220	Tin and other foils	S	do.	do.	(1)	35.3	36.5	35.9	do.	do.	do.		
1222	Watchcases	S	do.	do.	58.3	65.7	60.5	63.1	do.	do.	do.		
1224	Jewelers' findings and materials	S	do.	do.	40.7	(1)	36.2		do.	do.	Mixed		

TABLE I.—Summary of data for manufacturing industries, 1935—Continued

Industry number	Name of industry	Size code	Classification by durable, semidurable, and undurable	Classification by semimanufactured and finished	Concentration index	Value added ratio 1929	Value added ratio 1935	Average value added 1929-1935	Type of market	Location determinant	Type of industry	Price ratio 1932/29	Reliability of price data in relation to Census classification
MACHINERY, NOT INCLUDING TRANSPORTATION EQUIPMENT													
1301	Agricultural implements	M	Durable	Finished	72.4	59.0	52.1	55.6	Other	Mixed	Straight	81.9	Adequate.
1302	Cash registers and adding, calculating, and card tabulating machines	S	do	do	21.3	90.2	85.1	87.8	do	do	Mixed		
1303	Electrical machinery, apparatus and supplies	L	do	do	44.4	58.8	61.4	60.1	do	do	do		
1304	Engines, turbines, water wheels and windmills	M	do	do	30.7	55.7	57.9	56.8	do	do	do		
1305	Machinery, n. e. c.	L	do	do	7.0	(1)	62.5		do	do	do		
1307	Machine tools	M	do	do	13.8	73.7	70.1	71.9	do	do	do		
1309	Pumps (hand and power) and pumping equipment	S	do	do	22.7	59.3	59.4	59.4	do	do	do		
1310	Refrigerators and refrigerating and ice-making apparatus	M	do	do	46.1	55.5	48.1	51.8	do	do	do		
1311	Scales and balances	S	do	do	54.8	75.5	71.7	73.6	do	do	Straight		
1312	Sewing machines and attachments	S	do	do	78.9	63.3	71.3	68.4	do	do	Mixed	80.4	Do.
1313	Textile machinery and parts	S	do	do	29.4	70.1	66.4	68.3	do	do	do		
1314	Typewriters and parts	S	do	do	99.3	88.3	74.5	81.1	do	do	do		
1315	Washing machines, wringers, driers, etc.	S	do	do	56.0	59.6	49.7	45.7	do	do	do	66.5	Do.
1318	Machine tool accessories and machinists' precision tools	M	do	do	21.8	81.3	72.2	76.8	do	do	Mixed		
1319	Radio apparatus and phonographs	M	do	do	28.6	(1)	48.5		do	do	Straight		
1321	Bonder shops	S	do	do	25.2	62.8	64.1	63.5	Local	Consumer	do	77.6	Do.
1321	Foundries	M	do	Semimanufactured	29.3	(1)	54.1		National	Other	Mixed		
1321	Cranes, derricking, and excavating and roadbuilding machinery	S	do	Finished	29.3	(1)	54.1		do	do	do		
1325	Printers' machinery	S	do	do	32.5	(1)	74.7		do	do	Straight		
1326	Machine shops	M	do	Semimanufactured	8.7	(1)	58.7		Local	Consumer	do		
TRANSPORTATION EQUIPMENT, LAND, AIR, AND WATER													
1401	Aircraft and parts	S	do	Finished	53.9	61.5	61.1	65.3	National	Other	do		
1403	Carriages and sleighs, children's	S	do	do	47.0	53.1	52.2	52.7	do	do	do		
1404	Carriages, wagons, sleighs, and sleds	S	do	do	45.8	48.3	46.2	47.4	Regional	do	do	81.0	Fair.
1405	Cars, electric and steam railroad	S	do	do	71.7	31.8	38.6	35.2	National	do	do		
1406	Locomotives	S	do	do	(1)	37.0	45.3	41.4	do	do	do		
1407	Motor-vehicle bodies and parts	L	do	Semimanufactured	69.4	44.3	43.4	39.9	do	do	Mixed		
1408	Motor vehicles, not including motorcycles	L	do	Finished	87.3	55.5	54.1	49.8	do	do	Straight	88.9	Do.
1409	Motorcycles, bicycles, and parts	S	do	do	60.6	52.8	44.4	48.6	do	do	Mixed		
1410	Ship and boat building, steel and wooden, including repair work	M	do	do	44.8	62.9	60.9	61.9	do	do	do		
RAILROAD REPAIR SHOPS													
1501	Railroad repair shops, electric	S	Non-durable	do	32.3	61.7	64.0	62.9	do	do	Straight		
1502	Railroad repair shops, steam	L	do	do	57.4	58.1	54.2	56.2	do	do	do		
MISCELLANEOUS INDUSTRIES													
1601	Artificial and preserved flowers and plants	S	Semidurable	do	21.7	61.7	63.2	62.5	do	do	do		
1603	Artists' materials	S	do	do	52.3	56.1	49.7	52.9	do	do	do		
1604	Brooms	S	do	do	16.2	49.7	47.8	48.8	do	do	do		
1605	Brushes, other than rubber	S	do	do	33.3	52.4	55.3	54.1	do	do	do		
1606	Buttons	S	do	do	15.4	60.3	60.4	60.4	do	do	Mixed		
1607	Carbon paper and inked ribbons	S	Nondurable	do	35.6	53.8	49.0	51.4	do	do	Straight		
1608	Cigars	M	do	do	38.5	47.5	48.6	48.1	do	do	do	93.6	Adequate.
1609	Combs and hairpins	S	Semidurable	do	88.1	59.4	55.4	57.4	do	do	do		
1611	Dentists' equipment and supplies	S	Durable	do	51.6	50.7	60.3	55.5	do	do	Mixed		
1612	Miscellaneous articles n. e. c.	S	Semidurable	do	11.6	58.8	58.3	58.6	do	do	do		
1613	Feathers, plumes, and manufactures thereof	S	do	do	35.1	66.2	62.8	64.5	do	do	Straight		
1614	Foodry supplies	S	do	do	52.0	47.1	47.1	47.1	do	do	do		
1615	Fur goods	S	do	do	2.6	36.6	38.4	37.5	do	do	do		
1616	Furs, dressed and dyed	S	do	Semimanufactured	27.3	53.7	69.5	61.6	do	do	do		
1617	Hairwork	S	do	Finished	48.5	68.2	62.0	65.1	do	do	do		
1618	Hand stencils and stencils and brands	S	Durable	do	18.1	74.7	71.5	73.1	do	do	do		
1620	Instruments, professional and scientific	S	do	do	28.2	68.3	69.9	69.1	do	do	Mixed		
1622	Jewelry and instrument cases	S	do	do	31.8	62.3	63.0	62.7	do	do	Straight		
1623	Lapidary work	S	do	Semimanufactured	37.6	31.0	39.6	35.3	do	do	do		
1624	Mattresses and bed springs, n. e. c.	S	do	Finished	25.8	50.1	42.3	46.2	do	do	Mixed		
1625	Models and patterns	S	do	do	11.7	82.6	79.1	80.9	do	do	Straight		
1627	Musical instrument parts and materials: piano and organ	S	do	Semimanufactured	41.4	64.3	61.6	63.0	do	do	do		
1628	Musical instruments and parts and material, n. e. c.	S	do	do	41.5	73.2	69.9	71.6	do	do	do		
1629	Musical instruments: organs	S	do	Finished	57.0	72.7	66.0	69.4	do	do	do		
1630	Musical instruments: pianos	S	do	do	51.1	55.6	55.8	55.7	do	do	do		
1631	Optical goods	S	do	do	62.3	70.8	67.0	68.9	do	do	do		
1632	Paving materials, blocks and mixtures	S	do	do	48.9	53.6	44.2	48.9	Regional	do	do		
1633	Pencils, lead and crayons	S	Nondurable	do	41.9	61.3	58.7	60.0	National	do	do		
1634	Pens, fountain and stylographic; pen points, gold, steel, and brass	S	Semidurable	do	70.4	66.5	67.7	67.2	do	do	do		
1636	Photographic apparatus and materials	S	do	do	77.9	70.4	62.7	66.6	do	do	do		
1637	Pipes (tobacco)	S	do	do	62.2	68.5	68.5	68.5	do	do	do		
1638	Roofing, built-up and roll, etc.	S	Durable	do	42.8	40.7	43.6	42.2	do	do	do		
1640	Signs and advertising novelties	S	do	do	4.2	69.8	65.4	67.8	Local	Consumer	Mixed		
1641	Soda fountains and accessories	S	do	do	74.0	57.2	49.8	53.5	National	Other	Straight		
1642	Sporting and athletic goods	S	Semidurable	do	36.0	58.0	52.5	55.3	do	do	Mixed		
1643	Steam and other packing, etc.	S	do	do	46.9	52.5	51.6	52.1	do	do	Straight		

TABLE I.—Summary of data for manufacturing industries, 1935—Continued

Industry number	Name of industry	Size code	Classification by durable, semidurable, and nondurable	Classification by semimanufactured and finished	Concentration index	Value added ratio 1929	Value added ratio 1935	Average value added 1927-1935	Type of market	Location determinant	Type of industry	Price ratio 1927-29	Reliability of price data in relation to Census classification
MISCELLANEOUS INDUSTRIES—cont.													
1645	Surgical and orthopedic appliances and related products.	S	Durable.....	Finished.....	67.3	49.7	41.5	45.6	National.	Other.....	Mixed		
1646	Theatrical scenery and equipment.	S	do.....	do.....	29.9	61.9	61.3	61.6	do.....	do.....	Straight		
1647	Tobacco, (chewing and smoking) and snuff.	S	Nondurable.....	do.....	63.5	39.6	33.6	46.6	do.....	do.....	do.....	69.9	Fair.
1648	Toys, games, and playground equipment.	S	Durable.....	do.....	16.6	59.9	54.6	57.3	do.....	do.....	Mixed		
1649	Umbrellas, parasols, and canes.....	S	Semidurable.....	do.....	30.9	39.4	39.1	39.3	do.....	do.....	Straight		
1651	Window shades and equipment.....	S	do.....	do.....	34.0	46.5	52.6	44.6	do.....	do.....	do.....	70.6	
1652	Cigarettes.....	M	Nondurable.....	do.....	89.7	26.9	20.5	28.7	do.....	do.....	do.....	111.0	Adequate.
1653	Beauty-shop equipment.....	S	Durable.....	do.....	39.6	(1)	59.9		do.....	do.....	do.....		Do.
1654	Wool pulling.....	S	Nondurable.....	Semimanufactured	52.5	20.0	27.3	23.7	do.....	do.....	do.....		

<sup>1</sup> No comparable data.<sup>2</sup> Concentration data not shown because of approximate disclosure of individual operations.<sup>3</sup> Concentration data not shown because of unreliable data.<sup>4</sup> Largest 3 enterprises, combined to avoid disclosure of individual operations.

# APPENDIX 9.—DATA ON 200 LARGEST MANUFACTURING ENTERPRISES, 1935<sup>1</sup>

The following tables showing data for the 200 largest manufacturing enterprises are results of unpublished census compilations made available through the courtesy of the Bureau of the Census.

Special tabulations were prepared from the Census of Manufactures data for 1935 combining the activities of all establishments operating under a common ownership regardless of the industry in which the establishments were classified. This tabulation made possible the

selection of the largest multiple-establishment enterprises, to which were added the largest single-establishment enterprises. From this combined list of large enterprises, ranked according to the value of products, data for the 200 largest manufacturing enterprises were tabulated.

In order to avoid the possibility of disclosure for individual enterprises in the figures presented, a more stringent procedure has been followed than is usually employed by the Census Bureau. Ordinarily in the

<sup>1</sup> Appendix 9 was prepared by Grace W. Knott.

TABLE 1.—*Leading 200 manufacturing enterprises (based on value of products), grouped by firms and ranked according to value added by manufacture, 1935*

[Values are in thousands of dollars]

Groups	Number of establishments	Salaried employees		Wage earners		Cost of materials, fuel, and purchased electric energy <sup>2</sup>	Value of products <sup>3</sup>	Value added by manufacture <sup>3</sup>	Total manpower <sup>3</sup>	Total wages and salaries
		Number <sup>1</sup>	Salaries <sup>1</sup>	Average for year <sup>1</sup>	Wages <sup>1</sup>					
1	296	42,861	87,877	448,383	621,575	2,966,246	4,325,631	1,359,385	491,244	709,452
2	919	29,845	61,896	160,378	190,862	1,433,456	1,972,036	538,580	190,203	252,758
3	134	13,918	29,663	115,031	148,292	576,519	921,490	344,974	132,949	178,055
4	135	9,011	19,998	65,666	75,950	460,855	730,888	270,033	74,677	95,948
5	219	13,017	26,868	73,415	97,402	432,011	670,376	238,365	86,432	127,270
6	154	4,488	9,807	71,829	78,671	423,162	652,649	229,478	76,312	87,878
7	67	4,823	13,551	72,304	81,807	240,806	440,862	200,046	79,283	95,338
8	185	5,024	10,825	46,786	63,302	262,210	449,676	187,466	51,810	74,127
9	129	6,262	13,468	71,582	82,697	275,941	449,449	173,508	77,814	96,165
10	637	5,550	10,974	28,836	31,781	280,252	449,089	158,837	34,386	42,755
11	89	6,649	17,823	35,320	40,540	262,411	412,330	148,620	47,878	62,735
12	160	7,258	14,072	47,801	56,480	199,909	343,687	133,718	55,059	70,552
13	64	4,215	8,973	27,174	34,377	317,797	452,515	134,718	31,389	43,348
14	220	2,557	4,806	22,546	25,620	285,936	401,063	115,157	25,103	30,325
15	67	4,657	10,194	27,060	31,847	96,395	204,271	107,876	31,717	41,651
16	163	3,213	6,256	22,262	27,904	108,687	209,749	101,662	25,475	34,160
17	85	3,398	7,851	21,068	25,071	310,870	408,698	97,828	25,066	32,922
18	124	5,831	11,578	33,790	38,015	228,769	323,411	94,642	39,591	50,193
19	102	2,551	5,650	22,403	24,130	130,678	221,728	91,080	24,454	34,780
20	70	3,136	6,979	24,950	28,688	190,133	277,733	87,600	28,086	32,667
21	109	3,551	7,509	41,396	37,616	249,510	334,036	84,526	44,947	45,116
22	30	3,801	6,992	15,795	19,692	102,065	183,234	81,229	19,598	25,684
23	40	2,441	5,200	15,184	18,401	86,451	162,915	76,467	17,625	23,691
24	71	3,076	6,452	26,340	32,618	58,622	133,222	74,600	26,416	39,670
25	65	2,467	5,247	18,656	20,572	75,042	147,353	72,291	21,103	25,819
26	42	2,541	5,122	26,786	27,963	133,550	202,762	69,212	29,327	33,085
27	178	2,987	5,708	22,664	26,205	100,357	167,743	67,586	25,651	31,973
28	63	2,778	5,515	18,817	19,639	52,478	117,454	64,976	21,595	25,154
29	37	2,109	4,377	25,157	25,783	63,397	125,825	62,428	27,266	30,160
30	187	3,524	8,748	22,542	29,848	38,073	98,439	61,366	26,066	38,596
31	78	1,965	4,551	24,290	30,818	61,136	120,525	59,389	26,255	35,369
32	64	2,514	5,826	16,796	21,171	154,515	213,012	58,497	19,310	26,997
33	28	2,500	5,399	16,839	18,839	49,862	107,144	57,282	19,356	24,238
34	27	3,172	7,877	24,029	25,119	75,179	128,868	55,627	23,296	33,296
35	145	2,308	4,356	21,315	17,842	90,760	144,781	54,081	23,713	22,198
36	46	3,312	6,141	21,116	22,813	44,250	97,543	53,293	24,428	28,947
37	179	2,321	4,601	13,460	14,240	61,705	113,312	51,607	15,781	18,841
38	56	3,184	6,255	23,164	27,555	107,814	158,032	50,198	36,318	35,810
39	112	2,235	4,443	15,966	17,917	58,424	107,555	49,131	18,201	22,360
40	23	2,073	3,891	9,653	11,457	37,494	85,167	47,673	11,726	15,348
Total for 200 enterprises	5,597	236,043	496,451	1,863,408	2,282,488	11,191,740	17,266,342	6,074,062	2,069,451	2,778,939
Total all manufacturing industries	169,111	1,076,073	2,291,692	7,378,845	7,454,338	26,263,494	45,759,763	19,496,209	8,454,918	9,836,030

<sup>1</sup> No data for employees of central administrative offices are included.

<sup>2</sup> This is an average of the numbers reported for the several months of the year. In calculating it, equal weight must be given to full-time and part-time wage earners (not reported separately to the Census Bureau) and for this reason it exceeds the number that would have been required to perform the work done in the industries if all wage earners had been continuously employed throughout the year. The quotient obtained by dividing the amount of wages by the average number of wage earners cannot, therefore, be accepted as representing the average wages received by full-time wage earners.

<sup>3</sup> Profits and losses cannot be calculated from the Census figures because no data are collected for certain expense items, such as interest, rent, depreciation, taxes, insurance, and advertising.

<sup>4</sup> The aggregates for cost of materials and value of products include large amounts of duplication due to the use of the products of some industries as materials by others. For the United States as a whole, this duplication amounts to about one-third of the gross value of products.

<sup>5</sup> Wage earners and salaried employees.

Source: Census of Manufactures 1935—Special tabulations.



census reports figures are given for three or more establishments when it can be done without disclosing approximations of data for individual concerns. In these tabulations figures are shown for groups of five enterprises only.

Table I shows the 200 enterprises ranked according to the value added by manufacture and grouped by fives; table II presents the data for these enterprises ranked according to total manpower (salaried employees plus wage earners) and grouped by fives; and table III shows the 200 enterprises ranked according to value of products and grouped by fives.

Data are shown for the following items:

1. Number of establishments.

2. Number of salaried employees.
3. Salaries.
4. Average number of wage earners.
5. Wages.
6. Cost of materials, containers, fuel and purchased electric energy.
7. Value of products.
8. Value added by manufacture.
9. Total manpower (salaried employees plus average number of wage earners).
10. Salaries and wages.

The terms are those employed by the Census Bureau in their published reports of the *Census of Manufactures, 1935*.

TABLE II.—Leading 200 manufacturing enterprises (based on value of products), grouped by fives and ranked according to manpower, 1935

[Values in thousands of dollars]

Groups	Number of establishments	Salaried employees		Wage earners		Cost of materials, containers, fuel, and purchased electric energy	Value of products	Value added by manufacture	Total manpower	Total salaries and wages
		Number	Salaries	Average for year	Wages					
1.....	293	36,044	75,133	456,919	630,240	3,033,960	4,334,238	1,300,278	492,963	705,373
2.....	316	31,762	61,269	173,972	206,859	1,432,034	2,020,740	568,706	205,734	268,125
3.....	240	12,969	26,618	128,265	147,067	302,018	671,770	279,752	141,264	173,655
4.....	92	9,519	20,737	102,441	120,668	424,370	671,547	247,177	111,960	141,415
5.....	71	11,132	25,571	78,136	99,959	230,492	478,014	248,122	89,268	125,530
6.....	217	9,786	19,972	71,945	81,579	398,634	398,931	206,297	81,331	101,551
7.....	60	13,048	30,322	56,880	75,864	175,481	379,909	291,517	69,637	106,216
8.....	135	4,613	10,199	59,234	58,173	571,728	785,511	213,742	63,847	68,372
9.....	168	5,644	10,894	53,441	56,943	293,120	442,165	149,045	59,085	67,837
10.....	209	5,350	11,157	46,821	55,931	113,918	236,074	122,156	52,171	67,088
11.....	63	4,658	12,085	42,176	55,808	197,740	348,656	159,919	46,834	67,953
12.....	417	5,160	9,834	39,165	43,286	264,673	382,172	117,499	44,325	55,129
13.....	101	3,899	7,777	39,228	48,055	93,862	171,863	78,601	43,127	55,832
14.....	126	3,413	6,946	36,948	35,969	302,513	403,215	100,702	40,361	46,855
15.....	127	3,810	8,603	34,427	42,954	217,701	297,988	80,247	38,257	42,402
16.....	74	3,828	8,101	33,416	34,301	414,576	490,735	76,159	37,244	42,402
17.....	68	6,156	12,252	30,199	40,676	114,218	235,038	120,820	36,388	52,928
18.....	40	6,597	12,753	28,730	36,276	186,659	289,246	102,587	35,327	49,029
19.....	57	2,780	6,173	30,734	34,446	53,224	139,422	86,598	33,514	40,619
20.....	128	3,648	6,907	27,374	30,702	188,056	263,480	75,424	31,022	37,609
21.....	157	4,476	10,706	24,498	36,758	81,330	174,767	93,437	28,954	47,464
22.....	38	2,331	4,591	23,740	24,182	127,572	191,233	63,891	26,071	28,746
23.....	110	2,638	5,569	22,060	23,303	346,654	475,982	129,328	24,738	28,872
24.....	42	3,181	8,082	20,867	24,625	97,062	162,825	65,761	24,048	32,707
25.....	23	2,969	6,017	20,102	22,710	79,329	160,283	80,754	23,011	28,727
26.....	92	2,495	5,545	19,491	21,760	58,211	122,296	64,085	21,986	27,405
27.....	37	3,989	7,895	17,163	19,266	138,130	211,640	78,510	21,152	27,191
28.....	72	2,991	6,267	17,269	19,991	187,922	267,101	79,179	20,260	26,258
29.....	129	3,558	6,564	15,649	18,653	78,985	131,162	52,177	19,267	25,217
30.....	57	2,784	6,409	15,585	18,594	82,595	157,833	75,238	18,369	25,063
31.....	38	2,898	6,966	14,782	16,045	69,182	132,677	63,495	17,680	23,011
32.....	113	2,122	3,993	14,478	15,666	69,866	148,868	79,002	16,600	19,659
33.....	90	3,796	7,555	11,818	15,745	156,616	245,465	88,849	15,608	23,300
34.....	280	2,469	5,651	11,982	15,228	115,376	197,042	81,666	14,451	20,889
35.....	214	2,097	4,008	10,382	11,325	85,350	155,493	70,143	12,479	15,333
36.....	106	1,883	4,600	9,528	11,350	80,251	153,727	73,476	11,411	15,950
37.....	92	1,427	3,076	8,603	11,350	56,027	168,068	112,071	10,030	14,426
38.....	48	1,842	4,140	6,836	9,472	97,767	165,302	97,535	8,678	13,612
39.....	35	864	2,368	6,184	7,852	28,923	68,407	66,484	7,048	10,220
40.....	42	1,500	3,066	2,661	2,817	35,615	107,338	71,723	4,161	5,883
Total for 200 enterprises.....	5,597	298,043	496,451	1,863,468	2,282,488	11,191,740	17,266,342	6,074,602	2,069,451	2,778,930
Total, all manufacturing industries.....	169,111	1,076,073	2,291,693	7,378,845	7,544,338	26,263,494	43,759,763	19,496,269	8,454,918	9,836,030

For explanation of footnotes, see Table I, appendix 9

Source: *Census of Manufactures 1935—Special Tabulations*.

TABLE III.—Leading 200 manufacturing enterprises (based on value of products), grouped by firms and ranked according to value of products, 1935

[Values in thousands of dollars]

Groups	Number of establishments	Salaried employees		Wage earners		Cost of materials, containers, fuel, and purchased electric energy	Value of products	Value added by manufacture	Total manpower	Total wages and salaries	
		Number	Salaries	Average for year	Wages						
1	708	38,931	79,298	448,666	619,636	3,547,759	4,848,189	1,300,430	487,627	\$698,934	
2	428	21,668	43,296	136,536	149,993	1,153,926	1,588,720	434,794	158,294	193,289	
3	173	10,648	25,071	95,272	117,655	800,301	1,172,687	372,386	105,920	142,126	
4	159	10,636	20,346	70,665	89,064	685,960	894,493	208,593	81,301	109,440	
5	132	8,834	18,865	70,567	89,406	525,576	737,105	211,729	79,401	108,271	
6	114	6,431	12,667	57,283	65,584	503,738	659,225	155,487	63,714	78,191	
7	471	14,303	31,927	40,848	56,342	344,637	509,752	255,115	55,151	88,269	
8	152	9,611	19,116	83,351	94,283	332,574	571,338	238,764	92,962	119,902	
9	65	6,447	13,679	60,796	78,225	323,573	562,967	179,394	67,243	91,904	
10	216	4,322	8,927	59,266	69,069	272,491	427,149	154,658	63,588	68,936	
11	158	7,123	15,840	61,350	76,776	219,239	380,965	161,726	68,473	92,616	
12	317	4,424	9,348	33,162	33,244	249,790	358,332	108,542	33,586	42,592	
13	280	4,200	8,540	37,334	46,035	224,817	340,063	115,246	41,534	54,575	
14	145	7,354	18,530	29,021	38,350	189,045	310,665	121,620	36,355	56,880	
15	45	3,893	7,950	46,510	53,070	130,791	287,409	156,618	50,403	61,003	
16	48	2,994	6,926	22,378	30,424	139,877	261,117	121,240	25,372	37,350	
17	290	3,272	6,628	17,962	21,668	149,526	237,950	88,424	21,264	28,266	
18	74	4,251	10,494	14,917	21,609	95,848	226,762	130,914	19,168	32,103	
19	104	2,182	4,774	26,975	28,307	125,204	216,807	91,603	29,157	33,081	
20	101	3,169	5,909	33,565	30,545	106,040	205,068	99,028	36,734	36,454	
21	68	2,186	4,946	25,985	29,822	120,693	196,943	76,250	28,171	34,708	
22	40	9,818	19,664	33,525	42,624	84,345	185,120	109,775	43,343	62,288	
23	56	2,431	4,476	30,249	31,122	89,508	174,589	85,081	32,680	35,598	
24	73	2,086	4,182	26,644	28,772	87,198	163,189	75,991	28,730	32,954	
25	94	2,040	4,216	21,052	23,408	68,722	154,680	85,968	23,692	24,714	
26	75	2,115	4,844	23,789	23,408	85,809	148,775	62,876	25,901	28,252	
27	76	3,809	7,773	17,835	21,672	54,781	140,367	85,586	21,644	29,445	
28	35	2,156	4,207	19,363	22,258	57,890	130,045	72,185	21,719	26,465	
29	85	4,428	8,491	21,419	26,784	46,091	120,430	74,369	25,847	35,275	
30	90	1,854	4,324	21,584	26,297	50,569	114,443	63,874	23,438	30,621	
31	27	2,339	4,601	19,888	19,774	41,815	109,636	67,821	22,227	24,375	
32	69	2,783	5,972	23,255	23,092	53,086	107,083	53,997	26,038	29,064	
33	78	1,926	4,742	23,545	28,499	38,134	102,793	64,659	25,471	33,241	
34	78	3,473	8,367	17,149	22,210	35,123	99,008	63,885	21,692	30,577	
35	34	2,758	5,296	18,335	21,364	39,211	96,050	56,839	21,093	26,660	
36	61	3,165	6,326	23,875	28,390	30,786	91,778	60,992	27,040	34,686	
37	199	3,638	8,467	12,592	15,799	30,112	87,388	57,476	16,230	24,176	
38	28	2,964	7,069	17,794	22,236	23,011	79,797	56,786	20,758	29,305	
39	204	2,378	4,352	13,314	17,085	20,840	73,844	53,004	15,692	21,437	
40	19	3,023	6,065	9,532	11,247	13,534	63,421	49,887	12,555	17,312	
Total for 200 enterprises.....		5,597	236,043	496,451	1,863,408	2,282,488	11,191,740	17,266,342	6,074,692	2,099,451	2,778,939
Total, all manufacturing industries.....		169,111	1,076,073	2,291,693	7,378,845	7,544,338	26,263,494	45,759,763	19,496,269	8,454,918	9,836,030

For explanation of footnotes, see table 1, appendix 9.

Source: Census of Manufactures 1935—Special Tabulations.

# APPENDIX 10.—THE 200 LARGEST NON-FINANCIAL CORPORATIONS IN 1935 AND THEIR ASSETS 1929-1936<sup>1</sup>

The first step in this study of corporate concentration is the bringing up to date of the figures published in 1930 by Berle & Means in *The Modern Corporation and Private Property*. Those figures covered the years through 1929. The information on assets of individual corporations was secured from the manuals issued yearly by Moody's Investment Service. When the present study was begun, the 1937 set of manuals was not yet complete. The 1936 manuals, giving information as of December 31, 1935, provided the latest data available.

The three 1936 manuals for nonfinancial companies—industrials, public utilities and railroads—were scanned, page by page, and the total asset figure for each balance sheet noted. All companies reporting assets of \$50,000,000 and over were listed. In every case where a reserve for depreciation and/or depletion was listed on the liability side of the balance sheet, this reserve was deducted from the total asset figure, so that the figures used represent in all but a few instances total assets less depreciation. In the case of a few companies, the information supplied did not indicate whether such deduction had been made in reporting their total assets, and no reserve for depreciation appeared among the liabilities.

No company was listed if more than 50 percent of its voting stock was owned directly or indirectly by another company. In some cases, the information with regard to control provided by Moody's was supplemented by material filed with the Securities and Exchange Commission.

From the list of nonfinancial companies with assets of \$50,000,000 and over the list of the 200 largest for 1935 was made up. A list of the 200 largest for 1932 was made by following the same procedure, beginning with a page-by-page scanning of the 1933 manuals, etc.

These two lists and the Berle & Means list for 1929 provided the names of 268 companies which appeared on the list of the 200 largest nonfinancial corporations in 1929, 1932, and 1935. A card was made for each company of the 268, listing the Moody's figure for total assets less depreciation for each year from 1929 to 1935, inclusive.

By sorting these cards in order of size for each year, a list of the 200 largest was secured for 1930, 1931, 1933, and 1934, and a figure for the total assets of the 200 largest for each of these years was arrived at. It was assumed that while a page-by-page examination of the manuals for these intervening years might reveal cases

of error in the individual companies included on the list, the change in the total asset figure for the 200 would not be significant.

When the 1937 volumes of Moody's manuals became available, a list of the 200 largest nonfinancial corporations for 1936 was compiled by following the same procedure as for 1935 and 1932.

Total assets of the 200 largest nonfinancial corporations for the years from 1929 to 1936 are listed below:

	Millions of dollars
1929.....	78, 081. 7
1930.....	81, 754. 6
1931.....	81, 220. 4
1932.....	76, 854. 1
1933.....	75, 906. 2
1934.....	74, 649. 8
1935.....	74, 231. 8
1936.....	75, 375. 2

The marked drops in total assets between 1931 and 1932 and between 1933 and 1934 are accounted for largely by the fact that in each of these years a large group of companies wrote down their assets.

The difference between the total assets figure for 1929 derived above (78.1 billion dollars) and the figure for this year published by Berle & Means (81.0 billion dollars) is accounted for in great measure by the decision to exclude companies, included by Berle & Means, whose assets were principally foreign. If these companies are included, the total assets of the 200 largest corporations are as follows:

	Millions of dollars
1929.....	78, 909. 6
1930.....	82, 796. 8
1931.....	82, 148. 3
1932.....	77, 533. 5
1933.....	76, 586. 7
1934.....	75, 329. 7
1935.....	74, 843. 3
1936.....	76, 056. 9

Inclusion of these foreign-asset corporations would make the following change in the accompanying list for 1935:<sup>2</sup>

Foreign-asset corporations included by Berle & Means: Assets in millions	
American & Foreign Power Co.....	756. 0
International Match Corp.....	217. 6
Cuban Cane Products Co.....	101. 4
Total.....	1, 075. 0
Domestic corporations to be substituted:	
Continental Can Co.....	\$3. 2
American Metal Co., Ltd.....	\$2. 4
U. S. Smelting and Refining Co.....	\$1. 5
Total.....	216. 1

<sup>1</sup> Appendix 10 was prepared by Helen Hurd.

<i>Assets 1935</i>	
<i>Foreign-Asset Corporation included:</i>	
American & Foreign Power Co.....	750.6
<i>Domestic corporation displaced:</i>	
Natural Gas Pipeline Co. of America.....	67.3

The remaining difference between the above estimate of total assets of the 200 largest nonfinancial corporations in 1929 and the Berle & Means estimate is due to the fact that information relating to 1929 has become available since the publication of the Berle & Means estimate. The most important of such information is the reporting by Moody's of the depreciation account of the American Telephone & Telegraph Co.

A list of the 200 largest nonfinancial corporations in 1935 obtained by the method described above is given below:

TABLE I. *Two hundred largest nonfinancial corporations in the United States 1935*

[Asset figures obtained from Moody's in millions of dollars]

INDUSTRIALS	<i>Assets</i>
Standard Oil Co. (N. J.).....	1,894.9
United States Steel Corporation.....	1,822.4
General Motors Corporation (estimated)..... <sup>1</sup>	1,491.9
Socony-Vacuum Oil Co., Inc.....	789.7
Standard Oil Co. (Ind.).....	693.5
Ford Motor Co.....	681.6
Bethlehem Steel Corporation.....	673.1
Anaconda Copper Mining Co.....	581.5
E. I. DuPont de Nemours & Co.....	581.1
Standard Oil Co. of California.....	579.5
The Texas Corporation.....	473.8
Gulf Oil Corporation.....	430.2
General Electric Co.....	398.1
International Harvester Co.....	365.2
Shell Union Oil Corporation.....	358.1
Consolidated Oil Corporation.....	331.1
The Koppers Co. (estimated)..... <sup>2</sup>	331.0
Kennecott Copper Corporation.....	323.6
Swift & Co.....	321.4
Armour & Co. (Ill.).....	317.1
Republic Steel Corporation.....	297.5
Union Carbide & Carbon Corporation.....	271.1
The American Tobacco Co.....	264.2
Pullman Incorporated.....	258.6
Allied Chemical & Dye Corporation.....	252.5
Sears, Roebuck & Co.....	234.0
Aluminum Co. of America.....	223.0
American Can Co.....	209.1
Youngstown Sheet & Tube Co.....	207.5
Westinghouse Electric & Manufacturing Co.....	194.5
Chrysler Corporation.....	193.5
F. W. Woolworth Co.....	192.3
The Goodyear Tire & Rubber Co.....	192.3
National Dairy Products Corporation.....	192.0

<sup>1</sup> Assets of General Motors Acceptance Corporation, less value of total capital stock, plus assets of General Motors Corporation

<sup>2</sup> Assets of Koppers Gas & Coke Co., plus assets of Eastern Gas & Fuel Associates, plus assets of Brooklyn Borough Gas Co., less the investment of Koppers Gas & Coke Co. in the latter two companies. Fuel Investment Associates, a 100-percent-owned subsidiary of The Koppers Co., owned 56.7 percent of the common stock of Eastern Gas & Fuel Associates. Another 21.1 percent was owned by Koppers Gas & Coke Co., also a wholly owned subsidiary of The Koppers Co. The Gas & Coke Co. owned more than 98 percent of the stock of Brooklyn Borough Gas Co.

TABLE I. *Two hundred largest nonfinancial corporations in the United States 1935—Continued*

INDUSTRIALS—Continued

	<i>Assets</i>
Great Atlantic & Pacific Tea Co. of America.....	189.2
Phelps Dodge Corporation.....	185.1
Jones & Laughlin Steel Corporation.....	185.0
United Fruit Co.....	184.9
Tide Water Associated Oil Co.....	182.8
National Steel Corporation.....	180.5
Singer Manufacturing Co.....	175.8
Phillips Petroleum Co.....	174.5
American Smelting & Refining Co.....	171.7
Liggett & Myers Tobacco Co.....	170.5
Montgomery Ward & Co., Inc.....	168.7
Warner Bros. Pictures, Inc.....	168.5
Eastman Kodak Co.....	168.3
The Atlantic Refining Co.....	163.0
United States Rubber Co.....	159.3
American Radiator & Standard Sanitary Corporation.....	159.1
The Pure Oil Co.....	157.2
R. J. Reynolds Tobacco Co.....	153.9
Union Oil Co. of California.....	151.7
Glen Alden Coal Co.....	151.4
Pittsburgh Coal Co.....	142.2
Ohio Oil Co.....	139.7
The Firestone Tire & Rubber Co.....	139.3
Loew's Incorporated.....	128.6
Hearst Consolidated Publications, Inc.....	128.6
The Procter & Gamble Co.....	127.1
National Biscuit Co.....	124.5
The B. F. Goodrich Co.....	124.0
The American Rolling Mill Co.....	123.0
The Borden Co.....	120.1
Paramount Pictures, Inc.....	118.9
Corn Products Refining Co.....	118.7
S. S. Kresge Co.....	118.5
Inland Steel Co.....	118.3
The American Sugar Refining Co.....	117.7
Wheeling Steel Corporation.....	113.0
Pittsburgh Plate Glass Co.....	109.7
Crucible Steel Co. of America.....	109.1
Sun Oil Co.....	107.1
National Lead Co.....	104.0
Radio Corporation of America.....	102.5
Crown Zellerbach Corporation.....	101.3
Marshall Field & Co.....	97.0
United Shoe Machinery Corporation.....	96.4
General American Transportation Corporation.....	96.3
Crane Co.....	95.2
Continental Can Co., Inc.....	94.6
Philadelphia & Reading Coal & Iron Corporation.....	93.0
Continental Oil Co.....	91.7
American Car & Foundry Co.....	91.2
R. H. Macy & Co., Inc.....	90.5
International Shoe Co.....	83.2
The Lehigh Coal & Navigation Co.....	82.0
Gimbel Bros., Inc.....	79.9
Deere & Co.....	79.7
Wilson & Co., Inc.....	79.2
Climax Molybdenum Co.....	79.1
Minnesota & Ontario Paper Co.....	78.2
The Cudahy Packing Co.....	76.4
Brown Co.....	76.4
J. C. Penney Co.....	74.4
St. Regis Paper Co.....	73.7

TABLE I. Two-hundred largest nonfinancial corporation in the United States 1935—Continued

INDUSTRIALS—continued	
	Assets
Allis-Chalmers Manufacturing Co. ....	73. 2
U. S. Smelting, Refining & Mining Co. ....	73. 0
Columbia Oil & Gasoline Corporation.....	71. 8
McKesson & Robbins, Inc. (Md.).....	71. 4
American Woolen Co. ....	71. 0
S. H. Kress & Co. ....	70. 4
The Baldwin Locomotive Works.....	69. 7
The Cleveland Cliffs Iron Co. ....	69. 5
American I. G. Chemical Corporation.....	69. 3
General Foods Corporation.....	67. 9
Interlake Iron Corporation.....	67. 4

## PUBLIC UTILITIES

American Telephone & Telegraph Co. ....	3,998. 3
Consolidated Edison Co. of New York, Inc. ....	1,377. 0
Commonwealth & Southern Corp. ....	1,125. 8
Associated Gas & Electric Properties (estimated)....	<sup>3</sup> 1,125. 4
Cities Service Co. ....	1,113. 2
The North American Co. (estimated).....	<sup>4</sup> 1,042. 6
The United Gas Improvement Co. ....	812. 9
American Power & Light Co. ....	<sup>5</sup> 795. 9
International Paper & Power Co. ....	<sup>6</sup> 771. 2
Public Service Corporation of New Jersey.....	694. 0
Electric Power & Light Corporation.....	<sup>5</sup> 651. 5
Niagara Hudson Power Corporation.....	648. 0
Pacific Gas & Electric Co. ....	647. 3
Standard Gas & Electric Co. ....	<sup>7</sup> 637. 3
Columbia Gas & Electric Corporation.....	584. 7
Interborough Rapid Transit Co. ....	554. 8
National Power & Light Co. ....	<sup>8</sup> 546. 8
The United Light & Power Co. ....	537. 2
International Telephone & Telegraph Corporation.....	489. 7
American Gas & Electric Co. ....	<sup>5</sup> 417. 7

<sup>3</sup> Associated Gas & Electric Properties is a Massachusetts trust controlling the Associated Gas & Electric Co. (assets \$1,016,705,000), through the Associated Securities Corporation; and controlling the New England Gas & Electric Association (assets, \$108,579,000), through Munson Securities. Included in the consolidated balance sheet of the Associated Gas & Electric Co. are the assets of the Rochester Gas & Electric Corporation. All the voting stock of this corporation is owned by companies in the Associated Gas & Electric System. Control of the corporation has been lodged since July 15, 1932, in a voting trust dominated by Chase National Bank and Guaranty Trust Co. of New York. The trust is to terminate in 1942 when control will revert to the Associated Gas & Electric Co. The assets for Rochester Gas & Electric Corporation for 1935 were \$78,400,000.

<sup>4</sup> Assets of the North American Co., plus assets of the North American Light & Power Co., less the investment of the former in the latter.

<sup>5</sup> The four major domestic companies in the Electric Bond & Share Group are listed as individual corporations.

<sup>6</sup> Assets of International Paper & Power Co., plus assets of International Hydro-Electric System.

<sup>7</sup> As revised in statement to the Securities and Exchange Commission, June 22, 1935. The company's books showed total assets, less depreciation, of \$801,392,000, on Dec. 31, 1934, and \$793,257,000, on Dec. 31, 1935. Standard Gas & Electric Co. is actually controlled by the H. M. Byllesby Corporation, although Moody's credits the control to United States Electric Power Corporation. The latter elects only a minority of the board of Standard Gas & Electric Co.

TABLE I. Two-hundred largest nonfinancial corporations in the United States 1935—Continued

PUBLIC UTILITIES—continued	
	Assets
Middle West Corporation (estimated).....	<sup>8</sup> 400. 0
American Water Works & Electric Co. ....	396. 7
Commonwealth Edison Co. ....	<sup>9</sup> 376. 4
Stone & Webster, Inc. ....	371. 7
Utilities Power & Light Corporation.....	367. 2
Southern California Edison Co., Ltd. ....	360. 2
Western Union Telegraph Co. ....	341. 6
The Detroit Edison Co. ....	327. 2
Midland United Co. (estimated).....	<sup>10</sup> 320. 0
Brooklyn-Manhattan Transit Corporation.....	300. 4
Public Service Co. of Northern Illinois.....	<sup>9</sup> 226. 1
Duke Power Co. ....	213. 6
The Peoples Gas Light & Coke Co. ....	211. 4
Pacific Lighting Corporation.....	194. 3
The Edison Electric Illuminating Co. of Boston.....	181. 8
Federal Water Service Corporation.....	176. 7
Consolidated Gas Electric Light & Power Co. of Baltimore.....	160. 1
Central Public Utility Corporation.....	<sup>11</sup> 151. 6
Lone Star Gas Corporation.....	134. 3
Long Island Lighting Co. ....	127. 6
Hudson & Manhattan Railroad Co. ....	125. 5
The Brooklyn Union Gas Co. ....	121. 8
Chicago Railways Co. ....	112. 0
Boston Elevated Railway Co. ....	110. 6
Third Avenue Railway Co. (estimated).....	<sup>12</sup> 107. 2
Portland Electric Power Co. ....	95. 0
Community Water Service Co. ....	84. 5
Jersey Central Power & Light Co. ....	80. 1
Associated Telephone Utilities Co. ....	79. 4
Philadelphia Rapid Transit Co. ....	73. 0
St. Louis Public Service Co. ....	72. 8

<sup>8</sup> Company was reorganized in November 1935 after going into receivership in 1932. Assets at the end of 1936 were reported as \$444,187,000. Since no important additions or subtractions had been made in 1936, an estimate of \$400,000,000 for 1935 and 1936 seems to be conservative.

<sup>9</sup> A report of the Federal Power Commission (National Power Survey, Principal Electric Utility Systems in the United States, Power Series No. 2, 1935) showing the corporate relationships of the principal electric utility systems in the United States in 1935 shows Commonwealth Edison Co. owning directly 28.5 percent of the voting stock of the Public Service Co. of Northern Illinois, and 30.0 percent through the Commonwealth Subsidiary Corporation, a wholly owned subsidiary. A prospectus filed with the Securities and Exchange Commission, however, shows no direct stockholding by Commonwealth Edison in the Public Service Co. of Northern Illinois. Hence both are included as separate corporations.

<sup>10</sup> Company went into hands of trustee July 7, 1934. No balance sheet was filed from this date until Dec. 31, 1936. On that date, combined assets of subsidiaries were \$318,000,000. Estimate was made by interpolation between 1933 figure and 1936 figure.

<sup>11</sup> The figures here given are for the assets of Consolidated Electric & Gas Co., a wholly owned subsidiary of Central Public Utility Corporation. The assets of the latter for 1935 were \$50,328,000, of which \$50,258,000 were investments in Consolidated Electric & Gas Co.

<sup>12</sup> Total assets of Third Avenue Railway Co. less depreciation, plus total assets of subsidiary companies, less investment of Third Avenue Railway Co. in "securities of associated companies," less "advances to associated companies," and less "miscellaneous investments."

TABLE I.—*Two hundred largest nonfinancial corporations in the United States 1935—Continued*

PUBLIC UTILITIES—continued		
	<i>Assets</i>	
National Fuel Gas Co.....	72.4	
The Baltimore Transit Co.....	67.7	
Natural Gas Pipeline Co. of America.....	67.3	
RAILROADS		
The Pennsylvania R. R. Co. (estimated) <sup>13</sup> .....	2,863.0	
The New York Central R. R. Co. (estimated) <sup>13</sup> .....	2,356.0	
Alleghany Corporation (estimated) <sup>14</sup> .....	1,739.0	
Southern Pacific Co.....	1,677.7	
The Great Northern Ry. Co. (estimated) <sup>15</sup> .....	1,152.1	
Northern Pacific Ry. Co. (estimated) <sup>15</sup> .....	1,131.2	
Baltimore & Ohio R. R. Co.....	1,118.3	
The Atchison, Topeka & Santa Fe Railway Co.....	1,091.6	
Union Pacific R. R. Co.....	1,069.6	
Atlantic Coast Line R. R. Co. (estimated) <sup>16</sup> .....	786.5	
Chicago, Milwaukee, St. Paul and Pacific R. R. Co.....	699.5	
The Illinois Central R. R. Co.....	656.8	
Missouri Pacific R. R. Co.....	617.3	
Chicago & Northwestern Ry. Co.....	598.2	

<sup>13</sup> To allow for unconsolidated subsidiaries, in 1929 the total asset figure given in Moody's was increased by a small percentage. The 1935 figure was increased by the same percentage.

<sup>14</sup> Total assets, less reserve for depreciation, of New York, Chicago & St. Louis R. R. Co.; The Wheeling & Lake Erie Ry. Co.; Erie R. R. Co.; Chesapeake & Ohio Ry. Co.; and the Pere Marquette Ry. Co.

<sup>15</sup> Total assets, plus 50 percent of total assets of Chicago, Burlington & Quincy R. R. Co., and 50 percent of total assets of Spokane, Portland & Seattle Ry. Co. These two companies are controlled jointly by the Great Northern Ry. Co. and Northern Pacific Ry. Co.

<sup>16</sup> Assets of Atlantic Coast Line R. R. Co., less depreciation, plus assets of Louisville & Nashville R. R. Co., less depreciation.

TABLE I.—*Two hundred largest nonfinancial corporations in the United States 1935—Continued*

RAILROADS—continued		
	<i>Assets</i>	
Southern Railway Co.....	587.1	
The New York, New Haven, & Hartford R. R. Co.....	535.9	
Reading Co. (estimated) <sup>17</sup> .....	495.3	
Chicago, Rock Island & Pacific Railway Co.....	481.2	
Norfolk & Western Ry. Co.....	467.9	
St. Louis—San Francisco Railway Co.....	417.9	
Wabash Railway Co.....	318.6	
Boston & Maine R. R. Co.....	295.4	
Seaboard Air Line Ry. Co.....	272.1	
Missouri-Kansas-Texas R. R. Co.....	249.6	
The Delaware & Hudson Co.....	235.8	
The Denver & Rio Grande Western Railroad Co.....	233.1	
Lehigh Valley Railroad Co.....	217.0	
The Western Pacific R. R. Corporation (estimated) <sup>18</sup> .....	196.8	
The Delaware, Lackawanna & Western Railroad Co.....	176.4	
Western Maryland Ry. Co.....	168.1	
The Virginian Ry. Co.....	153.4	
Chicago Great Western R. R. Co.....	141.3	
Kansas City Southern Ry. Co.....	131.3	
Florida East Coast Ry. Co.....	123.2	
Chicago Union Station Co.....	91.4	
Chicago & Western Indiana R. R. Co.....	88.9	
Chicago & Eastern Illinois Ry. Co.....	80.2	
Terminal Railroad Association of St. Louis.....	77.0	
Minneapolis & St. Louis R. R. Co.....	72.0	

<sup>17</sup> Assets of Reading Co., less depreciation, plus assets of Central R. R. Co. of New Jersey, less investment of Reading Co. in affiliated companies.

<sup>18</sup> Total assets of Western Pacific R. R. Corporation, less investment in Western Pacific R. R. Co., plus total assets of Western Pacific R. R. Co., less depreciation.

<sup>19</sup> Owned by 15 roads which use the terminals in St. Louis.

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## APPENDIX 11.—ASSETS AND INCOME OF 200 LARGEST NON-FINANCIAL AND 50 LARGEST FINANCIAL CORPORATE UNITS<sup>1</sup>

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### PART I—NONFINANCIAL CORPORATIONS

#### 1. Methods and Procedures

##### Definitions

In the basic data for this study, a corporation is simply a corporate unit filing an income-tax return with the Bureau of Internal Revenue. In some years corporations were permitted to submit consolidated income-tax returns, and hence income statements and balance sheets, which included all subsidiaries, 95 percent or more of whose voting stock was held by the parent or other 95 percent-controlled subsidiaries of the same parent. All such subsidiaries whose returns were consolidated with those of their parents are herein called *consolidated subsidiaries*.

When the term *200 corporations* is used in this study what is intended is really 200 corporate units of control, and consolidated subsidiaries are therefore included. In considering units of control, all subsidiaries controlled should be included. The Interstate Commerce Commission considers the ownership of over 50 percent of the voting stock a sufficient condition to call a corporation a subsidiary. The Securities and Exchange Commission is legally permitted to call any company an "actively controlled" subsidiary if there is any evidence that actual control is exercised, whether 50 percent of the voting stock is held by the parent or not. In practice, the Securities and Exchange Commission ordinarily uses the term to apply to companies 50 percent or more of whose voting stock is held by one corporate unit of control. All such companies, however, do not appear upon their records. In this report all companies in which a majority of the voting stock is held by any corporation or combination of corporations in or controlled by the 200 largest are called subsidiaries. If the income tax return of such a company is not consolidated with that of its parent it is called an unconsolidated subsidiary. A corporation, then, is a corporate unit of control and is composed of a parent corporation, its consolidated subsidiaries, if any, and its unconsolidated subsidiaries which meet the majority control criterion. Actually there may be, and undoubtedly often are, other actively controlled corpora-

tions in the unit, but this criterion does not class them as subsidiaries. They are, therefore, excluded from the corporation, as here defined, and so from the totals for the 200 largest.

It should be emphasized that in employing this definition of subsidiary there is no intention to imply that a given proportion of stock ownership carries with it actual control. Majority stock ownership is an indication of ability to control, but is evidence neither of the minimum amount of ownership necessary for control nor yet of complete domination. Defining subsidiary in this way carries no implications of complete ownership. A parent may actually control the policies of a subsidiary even if it owns much less than 50 percent of its assets. Majority stock ownership is assumed to be evidence of ability to control, not of actual control, nor of complete ownership.

From practical considerations of statistical procedure and with a limited amount of time and clerical assistance available, all unconsolidated subsidiaries with total assets under 10 million dollars in 1933 were eliminated from the tabulation of the 200, no matter what percent of the voting stock was owned by the parent. The consolidated subsidiaries were included, however, since their assets could not be isolated from those of the parent corporation in the consolidated returns.

For 1929 a corresponding minimum for total assets was derived, the figure being close to 14 million dollars. All unconsolidated subsidiaries below the minimum were discarded. The details of the method of arriving at the corresponding minimum for 1929 and its interpretation are to be found in section 3.

##### Derivation of Lists of 200 Largest Corporations in 1929 and 1933

The lists of the 200 largest corporations were determined independently for 1929 and 1933. They were chosen on the basis of total assets shown by corporate returns filed with the Bureau of Internal Revenue plus total assets of all unconsolidated subsidiaries with assets of more than the minimum described in the previous section. Pure holding companies and financial companies were excluded, unless they were subsidiaries of parents on the list.

While this report uses total assets minus taxable investments as a general measure of size,<sup>2</sup> the lists were

<sup>1</sup> Appendix II was prepared by Ezra Glaser and Betti Goldwasser; some preliminary work done by Robert L. Smith. While all of the data in this appendix have been compiled directly from income-tax records except where specifically stated otherwise, the returns to be compiled have been selected and classified on the basis of independent information derived from other sources so that the compiled figures are now here available in the published or unpublished records of the Bureau of Internal Revenue.

<sup>2</sup> See section 4 for the significance of this measure of size.

compiled on the basis of total assets (including taxable investments). The use of total assets results in the inclusion of some companies which would have been too small had total assets less taxable investments been the criterion of choice. Certain other companies, whose taxable investments formed a smaller proportion of their total assets, were excluded from the 200 because their total assets were not large enough. Therefore, the list compiled is not actually the 200 largest measured by total assets less taxable investments.<sup>3</sup>

The procedure for deriving the lists was as follows:

For 1929, the returns of nonfinancial corporations with assets of 50 million dollars or more were inspected, and the companies arranged in order of size. This list was supplemented by comparisons with lists of large companies from other sources, such as the Interstate Commerce Commission and Moody's *Manuals*. This cross-comparison acted as a dragnet for corporations which submitted no balance sheets, and consequently no figure for total assets, to the Bureau of Internal Revenue. The 250 largest corporations, measured by total assets, were chosen for further inspection. (Consolidated subsidiaries were included, by necessity, in these corporations.)

The same sources were used to check all nonfinancial corporations with assets over \$14,023,000 for which Bureau of Internal Revenue data were available, to discover subsidiaries of the 250 largest corporations with total assets over the minimum. A compilation of total assets for each of the 250 largest corporations and its unconsolidated subsidiaries with assets over \$14,023,000 was made. From this, the 200 largest corporations were selected, measuring size by the sum of the assets of each parent and its unconsolidated subsidiaries with assets over the minimum.

Essentially the same procedure was used for 1933, except that the minimum for unconsolidated subsidiaries was set at 10 million dollars (10 million dollars bearing the same relation to total assets in 1933 as \$14,023,000 did to total assets in 1929), and the records of the Securities and Exchange Commission were used to supplement the other sources consulted.

An important exceptional case<sup>4</sup> should be noted. One large corporation, with assets of over three billion dollars, according to Moody's *Manuals*, did not submit a balance sheet in 1933. The procedure of searching through Bureau of Internal Revenue materials for corporations with large total assets failed to reveal a balance sheet for this corporation, although the corporation had submitted a return. Since the company did file a

balance sheet in 1929, its absence from the 1933 list was conspicuous. Estimates of its 1933 balance-sheet items had been made by the Bureau of Internal Revenue by combining the balance-sheet items of its constituent companies, and these figures were used, as omission of the company and its subsidiaries would have caused a serious distortion in the total asset item for the 200 largest corporations—a difference of over 3 percent.

Comparison of the 1929 and 1933 lists of the 200 largest corporate units with each other as well as with the lists of the largest corporate units compiled directly from Moody's *Manuals* and discussed in Appendix 10 did not disclose any other case in which a very large corporation failed to file a balance sheet in the years mentioned. If a small company, near the lower limits set by the total assets criterion, failed to submit a balance sheet but was on a list compiled from other sources, it made little difference if it was omitted and another small company substituted. The discrepancy which may have been introduced in this way is undoubtedly smaller than the error which would have been involved in an estimate of the missing balance-sheet items for companies which did not submit them.

The lists therefore include:

(a) The 200 largest nonfinancial parent corporations in each year, chosen on the basis of total assets as shown by the consolidated returns, plus total assets of all unconsolidated subsidiaries with total assets over the minimum;

(b) Subsidiaries of the 200 largest parent corporations whose returns are consolidated with those of their parents. (Parent companies were allowed to submit consolidated returns for all subsidiaries over which they had 95 percent or more control, measured by ownership of voting stock, but this was not compulsory. As a result, some subsidiaries subject to 95–100 percent control are probably not included. Subsidiaries thus consolidated may be of any size, and the majority have smaller total assets than the minimum.)

(c) Subsidiaries, showing assets greater than the minimum, which did not submit consolidated returns. Control of these by the parents ranged from 50 to 100 percent.

The procedure employed probably understates the 200 largest corporations, as no unconsolidated subsidiaries were included in the 200 unless balance sheets were submitted for them. That several such omissions were made is obvious from the most cursory search of Moody's *Manuals*. Other omissions may have been made because the information on stock control in the sources consulted did not reveal all the corporations which should have been classified as subsidiaries by the present definition. Where the subsidiary status of a company was doubtful, the error is deliberately on the side of conservatism. While the influence of missing companies is impossible to estimate accurately, the errors of omission were estimated to be very small.

<sup>3</sup> See p. 282 for an appraisal of the error thus introduced.

<sup>4</sup> A further exceptional case, in both 1929 and 1933, is that of a company which existed on paper only, representing a proposed merger through exchange of securities, of two large existing companies and their subsidiaries. Actually, the merger was never completed; for the purposes of this tabulation, however, the two independent companies were considered as active subsidiaries of an inactive parent (the paper company) which had no income statement or balance sheet apart from its subsidiaries. The two companies were operated as a unit.



From the discussion above it is evident that there may be one or two more or less than 200 corporations on the list. The former is likely if a corporation has been counted as a subsidiary which should have been considered independent. The latter is likely if a corporation has been counted as independent when it should have been considered a subsidiary of one of the corporations on the list. The error thus introduced is of slight importance. The ten smallest companies on the list contributed only 1.0 percent to total assets of the 200 in 1929, and 0.9 percent in 1933.<sup>5</sup> Omission or addition of one or two corporations at the very bottom of the list would therefore subtract or add a very small percentage of the total assets, and this percentage would be well within the range of error of the study. Similarly, if unconsolidated subsidiaries have been omitted because of missing balance sheets or insufficient information in the sources consulted, the choice of the 200 companies may have been affected. Again, the companies affected would probably be near the borderline, and the error would be insignificant. A rough guess puts the error due to these sources at something less than 2 percent, probably in the direction of understatement, as classification of the companies as subsidiaries was made as conservative as possible.

#### Classification by Industrial Group

The breakdown of the list of corporations into industrial groups can be compared with Bureau of Internal Revenue classification, as follows:

All nonfinancial corporations include corporations classified in *Statistics of Income* under the heading "Aggregate", less those classified under "Finance".

Manufacturing is classified by the same definition as "Total manufacturing" in *Statistics of Income*.

Transportation and other public utilities are classified by the same title in *Statistics of Income*. This classification has been broken down for the present tabulation according to the Bureau of Internal Revenue's subclassifications, "Transportation and related activities" and "Other public utilities", as shown in table 14 of the 1933 *Statistics of Income*.<sup>6</sup>

"Other nonfinancial corporations" include corporations classified in *Statistics of Income* under the headings "Agriculture and related industries," "Mining and quarrying", "Construction", "Trade", "Service", and "Nature of business not given."

The correspondence with the Bureau of Internal Revenue industrial classification was maintained for the calculation of concentration ratios.

Consolidated subsidiaries are, of course, subject to the industrial classification of their parents. This is true both for the tabulations of the 200 corporations and for *Statistics of Income*. Unconsolidated subsid-

aries were tabulated for the 200 according to the industry of their parents. This is not true of the Bureau of Internal Revenue practice; for tax purposes these subsidiaries are independent and hence are classified independently. This difference in classification distorts the concentration ratios of the industrial groups by an unknown amount. No evidence of change in bias could be found over the period 1929-33.

The number of parent corporations in the 200 included in each industrial group in each year, and the corresponding information for unconsolidated subsidiaries, are shown in table I together with the percentage distribution of the corporations by industrial group.

TABLE I.—Number and percentage distribution of returns of parents and unconsolidated subsidiaries tabulated for the 200 largest nonfinancial corporations, by industrial groups, 1929 and 1933<sup>1</sup>

	200 largest nonfinancial corporations		Manufacturing		Transportation and other public utilities		Transportation		Other public utilities		Other nonfinancial	
	Number	Percent of 200	Number	Percent of 200	Number	Percent of 200	Number	Percent of 200	Number	Percent of 200	Number	Percent of 200
Parents												
Unconsolidated subsidiaries												
All returns												
1929												
Parents	200	100	82	41.0	92	46.0	49	24.5	43	21.5	26	13.0
Unconsolidated subsidiaries	258	100	44	17.1	201	77.9	77	29.8	124	48.1	13	5.0
All returns	458	100	126	27.5	293	64.0	126	27.5	167	36.5	39	8.5
1933												
Parents	200	100	78	39.0	96	48.0	48	24.0	48	24.0	26	13.0
Unconsolidated subsidiaries	260	100	53	18.9	218	77.9	96	34.3	122	43.6	9	3.2
All returns	460	100	131	27.3	314	65.4	144	30.0	170	35.4	35	7.3

<sup>1</sup> The 200 largest corporations in 1929 and 1933 are not identical. See preceding page.

#### The Items Tabulated

The items tabulated have been defined, where necessary, in footnotes to the tables. They are comparable to items in *Statistics of Income*. Further description follows:

(a) *Inventories*.—Although *Statistics of Income* shows a total for inventories for all corporations submitting balance sheets, the total does not represent comparable contributions from the various industrial groups, because of the different usage of the word "inventory" by them. Except for one classification, the term primarily signifies inventory to be sold. For transportation and other public utilities, the term is used primarily to represent inventory for use (actually working capital in the form of fuel supplies, reserves of equipment, etc.). For transportation and other public utilities it represents an asset item which is not comparable in economic significance to the same asset item for other industrial classifications.

(b) *Taxable investments*.—This item is comparable to the item "Investments other than tax-exempt" in *Statistics of Income*. Stocks of corporations were in-

<sup>5</sup> Four other items were investigated and showed substantially the same percent contribution for the 10 smallest corporations.

<sup>6</sup> The tables in *Statistics of Income* which were used to derive the concentration ratios did not have this breakdown. The necessary totals were taken from office worksheets of the Bureau of Internal Revenue.

cluded in this classification because the securities themselves were not tax-exempt. Dividends paid on these stocks to individuals were taxable. However, the tax laws did not require dividends to be included in the taxable income of a corporation in the period studied. Hence, "Taxable investments" includes all investments except the obligations of political units, although actually corporations did not pay income tax on dividends received from corporate stocks.

(c) *Miscellaneous assets*.—Miscellaneous assets is, for the 200 and for *Statistics of Income*, a remainder, derived by subtracting the specific asset items from total assets. When the balance-sheet statements are given in detail by a company, miscellaneous assets represents primarily good will and patent rights, and certain liquid assets not elsewhere listed. However, for those corporations which submit sketchy balance sheets, miscellaneous assets may contain in whole or in part asset items which should be reported elsewhere in the balance sheet. The figures tabulated are comparable to *Statistics of Income* for this item; the sole difficulty lies in interpreting the totals for the item.

(d) *Total assets less taxable investments*.—As has been mentioned, this item is considered more indicative of the assets controlled by a corporation than total assets. Total assets is subject to a heavy inflation because of security holdings of related corporations, but the worst part of this duplication of assets is removed by subtracting taxable investments. Further comment will be found in section 4.

(e) *Receipts*.—The item tabulated as receipts represents the combination of gross sales (where inventories are an income-determining factor) with receipts from other operations. This seems desirable because of the arbitrary division of these two items in *Statistics of Income*. According to Bureau of Internal Revenue practice, income of transportation and other public utilities, and of finance companies, is never classified as gross sales, no matter what the source, even when it results from sales of inventory. The difficulty of comparing receipts for the various industrial groups when the rigid Bureau of Internal Revenue practice is followed makes it advisable to sum the two items.

(f) *Income tax*.—It should be remembered that excess-profits taxes were not paid before 1933, and are therefore not included with income tax before that year. For 1933, the Federal income tax and the excess-profits tax were summed, as both are taxes on income. The tax thus paid is paid on an income larger than that revealed in the item tabulated as statutory net income less statutory net deficit in *Statistics of Income*.<sup>7</sup> The

result of subtracting the deficit is to conceal the amount of income actually taxed.

(g) *Interest received from tax-exempt investments*.—The relation of this item to the actual holdings of tax-exempt investments as shown by balance sheets is not clear. The balance-sheet item represents the estimated values of holdings as of December 31. The interest recorded is an income item covering the whole year, and does not, of course, necessarily correspond to security holdings of a given date. It is, however, an absolute and measurable quantity, unlike the value of holdings of tax-exempt investments. The totals for the latter depend on the basis used for valuation.

Two other items included in the accompanying tables were derived from items recorded on tax returns and in *Statistics of Income*. A measure of the income from operations was derived by combining compiled net profit and interest paid, and subtracting from the result income tax, interest received on taxable investments, interest received on tax-exempt investments, and cash dividends received. This amounts to taxable (or statutory) net income, which is not tabulated, plus interest paid, less income tax, less interest received on taxable investments.

A measure of corporate savings was also derived. This equaled compiled net profit, less income and excess-profits taxes paid, less cash dividends paid. This item is frequently negative, showing that dividends were paid out of reserves, not out of current income.

#### Tabulation of the Bureau of Internal Revenue Data

The income-statement and balance-sheet items were tabulated for 1929 and 1933 for the 200 largest non-financial corporations by industrial group, and for their unconsolidated subsidiaries, arranged by the industrial group of the parent. Totals were computed for each item for each industrial group, and these were summed to give the total for the 200.

It should be emphasized that the records from which the tabulations were made were compiled from data available in the Statistical Section of the Income Tax Unit of the Bureau of Internal Revenue, which were compiled from unaudited returns. Tables in *Statistics of Income* are compiled from the same records, so there is no lack of comparability from this source. However, should the returns of large corporations be more likely to be subjected to change after auditing than the returns of smaller corporations, it becomes apparent that the totals from audited returns would show a much greater percentage change from the present totals for the 200 than for all nonfinancial corporations. No quantitative estimate of the shift can be made. In this case, it is probable that the concentration ratios for certain income items would be raised.

<sup>7</sup> The accompanying tables include compiled net profit or loss, which differs from statutory net income in that it includes interest on tax-exempt investments and dividends received. Statutory net income less statutory net deficit may easily be computed from the accompanying tables by subtracting tax-exempt interest and dividends received from compiled net profit or loss.

The totals from the tabulations for both years are presented in table II, for the 200 largest nonfinancial corporations, and in table III, for the 200, by industrial group.

**Adjustment of the Tabulated Totals  
for Unconsolidated Subsidiaries with  
Total Assets Below the Minimum**

It was explained above that all unconsolidated subsidiaries below certain sizes were intentionally omitted from the tabulations. From the present definition of subsidiary it is obvious that this omission understates the totals for the 200 largest corporations in both 1929 and 1933. Therefore, a method of adjusting for this omission was devised. A study of the frequency distributions of all unconsolidated subsidiaries tabulated by total asset class was made for total assets and capital assets in 1933. However, no definite configuration for the ends of the frequency curves could be inferred with certainty. The average of the next few asset classes above the minima for 1929 and 1933 was therefore used as a basis for estimating the totals for various items. The rest of the items were adjusted a similar percentage.<sup>8</sup>

These adjustments were expressed as increments and entered on tables II and III along with the adjusted and unadjusted totals.

**Adjustment of the Bureau of Internal  
Revenue Balance-Sheet Items  
for Corporations not Submitting  
Balance Sheets**

All corporations which submit income-tax returns file income statements. Hence the totals for income statement items for all nonfinancial corporations in *Statistics of Income* are complete. However, it is not compulsory to file balance sheets, and some companies do not. *Statistics of Income* totals for balance-sheet items must therefore be adjusted for this understatement. For 1931-33 income-statement items are available for all corporations submitting returns and all corporations submitting balance sheets. It was assumed that the percentage understatement for any balance-sheet item was the same as the percentage understatement (determined from *Statistics of Income*) for a related income-statement item. Special assumptions had to be made for transportation corporations and other public utilities for all years, and for all balance-sheet items in 1929 and 1930. These are fully discussed in section 2 of this appendix.

**Derivation and Interpretation  
of the Concentration Ratios**

The statistic designed to measure the concentration of control is called the *concentration ratio*. It is simply

the ratio of the total for the 200 largest corporations to the total for all corporations expressed as a percent. The ratio is computed after the adjustments for missing balance sheets and for unconsolidated subsidiaries have been made. It was computed for all years, all items, and all industrial groups shown on the basic tables.

It should be remembered that this statistic measures not the concentration of ownership but the concentration of control in the 200 largest corporate units of the various income-statement and balance-sheet items. In some cases the concentration ratio is properly more than 100. This is true of net-income and profit figures where both negative and positive figures go into the totals; a concentration ratio greater than 100 shows that the 200 largest made more net income or profit than all corporations. Similarly in these items some negative concentration ratios appear. These arise from the application of the elementary rules for algebraic signs and they indicate that the total for the 200 largest has a different sign than the total for all corporations. The 200 report a loss, while all corporations as a group report a gain, or vice versa.

In some cases the concentration ratio is more than 100 in an item where negative figures are not possible. This inconsistency appears in cash dividends received and miscellaneous assets, and it indicates inaccurate data. Neither of these items yields concentration ratios of importance; they are used in the derivation of other figures whose concentration ratios are of significance. In each case the inaccurate figures contributed only a small percent to the total for the derived figures. Hence a moderate error in small items was translated into a small or insignificant error in a large item. Where a concentration ratio is more than 100 in an item having no negative values it is likely that the true concentration ratio is very large and a moderate error in the ratio suffices to raise it over 100 and give the appearance of extraordinary inaccuracy.

Where the concentration ratio is equal to 100 and the figures used to compute the ratio were small it is obvious that the ratio is equal to 100 plus or minus rounding errors. For example, where the estimated ratio comes out 10/10 (equal to 100 percent), the true ratio must be somewhere between 90.5 percent and 100 percent.

The concentration ratios in the two parts of table II are comparable; the relative concentration of control for the 200 largest corporations may be compared for 1929 and 1933. However, in table III the two parts are not comparable as measures of the degree of concentration for the several industrial groups in 1929 and 1933. In each case the totals for industrial groups are for all companies in that group on the list of the 200 largest. These numbers are not the same for 1929 and 1933. Table V was compiled to show the change in the degree of concentration by industrial groups for a

<sup>8</sup> See section 3.

constant number of corporations in each industrial group. This table is discussed below.

#### The Derivation of Table IV

Three important asset items were studied for the years 1930-32, as well as 1929 and 1933. Total assets, capital assets, and total assets less taxable investments were estimated for the intervening years from the tabulated totals for 1929 and 1933.

A chain index was computed for the period 1929-33 from data showing the percent change from year to year of a list of identical companies in each industrial group. This index was applied to the tabulated totals for each of the three items for each of the four industrial groups. The resulting estimates by industrial groups were summed to get the estimates for the 200 largest. Because of the inadequacy of the sample for taxable investments in the intervening years this item was not estimated separately. Total assets less taxable investments were estimated directly, using the same chain indexes as were used to estimate total assets.

The lists of the 200 largest corporations for the three interpolated years were never compiled, but the estimated totals are presented in table IV. The totals for 1929 and 1933 were adjusted for the omission of "small" unconsolidated subsidiaries before the interpolation was made. Consequently there is an implicit adjustment for the estimates of the intervening years, ranging between the adjustments of the end years.

The adjustment for missing balance sheets is made as described above. The concentration ratios are presented in the table and they show the movement over the 5-year period. The details of the interpolation are discussed in section 5 of this appendix.

#### The Derivation of Table V

It was pointed out in the section on the interpretation of the concentration ratios that the ratios for the industrial groups were not comparable for the 2 years shown in table III because of the changing number of corporations in the 200 largest that fell into each industrial group. This difficulty was overcome by deriving a new set of totals for 1929 and 1933 in which the same number of companies was used for each industrial group.<sup>5a</sup> This was done for the same three asset items as were shown in table IV.

These totals were corrected for the omission of unconsolidated subsidiaries with total assets below the minima for the 2 years. The same adjustment increment as was used for the industrial groups in table III was assumed to apply to these new tabulated totals. In other words, it was assumed that the sub-

traction of the few smallest corporations in each industrial group would not diminish the contribution of the unconsolidated subsidiaries with total assets below the minimum figure.

The adjusted totals by industrial groups for all corporations filing balance sheets, are the same figures as appear in table III. The concentration ratios are presented in table V and they are a measure of the degree of relative concentration for a constant number of corporations in each industrial group. They are comparable for the 2 years shown and they give an indication of the change in concentration of control within the industrial groups. As some corporations had to be discarded, these concentration ratios are not comparable with those in table III. The totals for the industrial groups in table III add up to the totals in table II. The totals for the industrial groups in table V do not add up to the totals for the 200 largest corporations in tables II and IV.

#### Accuracy of the Results

The general accuracy of the absolute figures and the concentration ratios cannot be stated in rigid terms. It is impossible to estimate the "standard error" or "likely error" quantitatively. All that can be said is that the evidence indicates that the error is less than a given amount. Most of the errors are not subject to a quantitative estimate at all. Some are beyond doubt "insignificant" compared to the others and have been labeled as such. The direction of errors is not always determinate. It cannot always be stated with any certainty whether a given set of errors is compensating or additive. Therefore the appraisal will be rough and the results will not be expressed in rigorous mathematical terms.

A few sources of error are of particular importance and will be discussed separately:

1. Errors in making up the list: The disagreement among the several sources used to determine the complete structure of each of the 250 largest corporations (from which the lists of 200 were derived) points to error in the lists of unconsolidated subsidiaries. In every case the indeterminate cases were decided on the side of understatement, so the totals for the 200 largest corporations and the concentration ratios are probably understated throughout. It is possible that these errors might run over 2 percent, but no reliable estimate of the size of the error can be made. There is no reason to believe that the error in 1929 is larger or smaller than that for 1933. Many of the doubtful cases occurred in both years and were treated identically so there seems to be little cause for bias over the period, in the totals for the 200 or in the concentration ratios.

2. Errors arising from the treatment of unconsoli-

<sup>5a</sup> The largest multiple of five that could be used. The actual companies were not necessarily identical for the 2 years. The discarded companies were the smallest ones in the industrial groups in the respective years.

dated subsidiaries with total assets below the minimum: The adjustments for this understatement were of the order of about one percent and were practically the same for 1929 and 1933. The adjustment was crudely estimated because the frequency distributions exhibited by unconsolidated subsidiaries were somewhat erratic.<sup>9</sup> There must have been some subsidiaries below the rather large minima in both years so the adjustment could not overstate as much as one percent. It would seem extravagant to estimate the error of overstatement from this cause at more than one-quarter of one percent of the adjusted totals for either year. On the other hand, there is no such well-defined limit to the possible understatement of the adjustment. There might have been a great number of corporations with total assets between one million and 10 or 14 millions of dollars. This circumstance might have raised the totals and hence the concentration ratios as much as 2 percent. There is no reason to expect that the totals for 1929 should be more or less in error than those for 1933.

3. Errors arising from adjustment for returns with missing balance sheets: There seemed to be little chance for the adjustment for missing balance sheets to introduce any significant error into the concentration ratios for the 200 largest corporations. The adjustments for 1929 and 1930 were derived indirectly and are less likely to be accurate than those for the later years. There is, however, reason to believe that the adjustment applied to the separate industrial groups involved a greater percentage error than in the case of the totals for all nonfinancial corporations. The adjustments for the transportation corporations and the other public utilities were estimated as were the adjustments for all industrial groups in 1929 and 1930.<sup>10</sup> The order of these adjustments was about 2 percent, although they range from 0.2 percent to 7.0 percent for different items. Taxable investments might be subject to 2-percent or possibly 3-percent error in 1929. On the other hand, it is unlikely that capital assets, total assets, or tax-exempt investments have as much as one-half of one percent error from this adjustment. Obviously, this error does not affect the totals for income items.

4. Errors arising from the criterion used to determine size: The use of total assets less taxable investments as a measure of size of corporations, instead of total assets, involved two ways of understating the totals for the 200, and the concentration ratios. The actual selection of the 200 largest corporations was made on the basis of size of total assets rather than total assets less taxable investments. It would be an unusual coincidence indeed if the 200 corporations which had the largest total assets were the same as the 200

corporations which had the largest total assets less taxable investments. Further, it should be pointed out, the elimination of *all* taxable investments seriously overcorrects,<sup>11</sup> since some of these investments are securities of corporations outside the corporate unit. The value of taxable investments is in the range of 25 percent of the total assets. Therefore an overstatement of some 10 percent (somewhat liberal, seemingly) in the taxable investments being subtracted would bring about a discrepancy of approximately 3½ percent in the total assets less taxable investments item.

5. Errors arising from the change in classification of subsidiaries: For the purpose of tabulation by industrial groups subsidiaries were classified by the industrial group of their parent, whereas the Bureau of Internal Revenue classifies each corporate return independently. The figures for some of the 200 largest corporations include assets of subsidiaries which belong to industrial groups other than those of their parents, hence the numerator and the denominator of the concentration ratio are not quite comparable as to industrial group. Naturally this error does not apply to the concentration ratios for the 200 largest corporations as a unit, except insofar as financial corporations may have been included as subsidiaries of the nonfinancial corporations in the 200.

6. Errors arising from interpretation of items affected by the consolidation of balance sheets: While there is no error involved in the computations or procedures, it is difficult to define precisely what some items mean. Some items were subject to double counting,<sup>11</sup> because complete consolidation was impossible, and there was no way of defining exactly what the totals represented. There might be a significant difference between the totals in the tables and corresponding totals for the "200 largest consolidated balance sheets", and this could be called the "error". This cannot be measured even approximately but it might well run up to 10 percent.

7. Errors in reading of the Bureau of Internal Revenue records: In some cases the records from which the tabulations were made were faded and worn so there was some danger of misreading figures for individual companies. The error here is not possible to estimate but is unlikely to be significant.

More detailed statements of the handling of certain errors are made in the other sections of this appendix. Special attention should be called to the remarks on the relative accuracy of the various items, industrial groups, and years.

No estimate of the combined error due to all causes can be attempted, but the general size of the likely error can be inferred roughly from the list enumerated above.

<sup>9</sup> See pp. 292, 282.

<sup>10</sup> See section 2.

<sup>11</sup> See section 4.

TABLE II.—*Derivation of the concentration ratios, and the totals for asset items and selected income-statement items for the 200 largest non-financial corporations, 1929 and 1933*

## PART I, 1929

	200 largest nonfinancial corporations			All nonfinancial corporations			Concentration ratio: 200 largest to all non-financial corporations (per-cent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under \$14,023,000 <sup>a</sup>	Adjusted totals	Corporations <sup>1</sup> submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets <sup>b</sup>	Totals with balance-sheet items adjusted	
Millions of dollars							
ASSET ITEMS							
Cash <sup>2</sup> .....	2,886	29	2,915	7,900	161	8,061	36.2
Inventories.....	5,548	55	5,603	20,990	324	21,314	26.3
Capital assets less reserve for depreciation and depletion.....	57,497	854	58,351	98,627	2,062	100,629	58.0
Tax-exempt investments <sup>3</sup> .....	1,001	10	1,011	2,358	30	2,388	33.8
Taxable investments.....	13,710	78	13,788	21,824	601	22,425	61.5
Notes and accounts receivable.....	16,773	156	16,929	22,681	488	23,169	38.5
Miscellaneous assets <sup>4</sup> .....				20,074	709	20,843	
Total assets <sup>5</sup> .....	97,415	1,182	98,597	195,054	4,375	199,429	49.4
Total assets <sup>5</sup> less taxable investments.....	83,705	1,104	84,809	173,230	3,774	177,004	47.9
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	38,924	365	39,289			138,987	28.3
Interest received from taxable investments.....	538	3	541			1,096	50.8
Interest received from tax-exempt investments <sup>3</sup> .....	64	1	65			151	43.0
Cash dividends received.....	1,260	8	1,268			1,621	78.2
Interest paid.....	1,552	16	1,568			2,759	56.8
Taxes other than income tax <sup>7</sup> .....	884	9	893			1,729	51.6
Income tax <sup>8</sup> .....	415	4	419			971	43.2
Depreciation and depletion.....	1,703	22	1,725			4,117	41.9
Cash dividends paid.....	3,619	36	3,655			6,593	55.4
Compiled net profit or loss <sup>9</sup> .....	5,251	42	5,293			9,323	56.8
Income derived from operations <sup>10</sup> .....	4,526	42	4,568			8,273	55.2
Corporate savings <sup>11</sup> .....	1,217	2	1,219			1,750	69.3

## PART II, 1933

	200 largest nonfinancial corporations			All nonfinancial corporations			Concentration ratio: 200 largest to all nonfinancial corporations (per-cent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under \$10,000,000	Adjusted totals	Corporations <sup>1</sup> submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
Millions of dollars							
ASSET ITEMS							
Cash <sup>2</sup> .....	2,553	26	2,579	5,984	134	6,118	42.2
Inventories.....	3,829	38	3,867	13,458	170	13,628	28.4
Capital assets less reserve for depreciation and depletion.....	59,200	749	59,949	91,246	2,110	93,356	64.2
Tax-exempt investments <sup>3</sup> .....	795	8	803	2,840	15	2,855	28.1
Taxable investments.....	17,668	86	17,754	24,687	1,046	25,733	69.0
Notes and accounts receivable.....	5,444	54	5,498	14,669	319	14,919	36.9
Miscellaneous assets <sup>4</sup> .....	5,153	14	5,167	9,916	1,196	11,112	46.5
Total assets <sup>5</sup> .....	91,642	975	95,617	162,731	4,990	167,721	57.0
Total assets <sup>5</sup> less taxable investments.....	76,975	888	77,863	138,044	3,944	141,988	54.8
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	21,793	192	21,985			73,423	29.9
Interest received from taxable investments.....	379	2	381			563	64.1
Interest received from tax-exempt investments <sup>3</sup> .....	64	1	65			129	50.4
Cash dividends received.....	413	2	415			545	76.1
Interest paid.....	1,612	16	1,628			2,448	66.5
Taxes other than income tax <sup>7</sup> .....	893	9	902			1,716	52.6
Income tax <sup>8</sup> and excess-profits tax.....	140	1	141			387	36.4
Depreciation and depletion.....	1,612	21	1,633			3,449	47.3
Cash dividends paid.....	1,510	15	1,525			2,552	59.8
Compiled net profit or loss <sup>9</sup> .....	527	6	533			140	38.7
Income derived from operations <sup>10</sup> .....	1,163	16	1,179			964	122.3
Corporate savings <sup>11</sup> .....	-1,123	-10	-1,133			-2,799	40.5

For footnotes, see p. 289

TABLE III-A.—*Derivation of the concentration ratios, and the totals for asset items and selected income-statement items for manufacturing corporations in the 200 largest nonfinancial corporations and all manufacturing corporations, 1929 and 1933*

	PART I. 1929						Concentration ratio: 82 largest to all manufacturing corporations (percent)
	82 largest manufacturing corporations			All manufacturing corporations			
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under \$14,023,000 <sup>a</sup>	Adjusted totals	Corporations <sup>1</sup> submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets <sup>b</sup>	Totals with balance sheet items adjusted	
Millions of dollars							
ASSET ITEMS							
Cash <sup>2</sup> .....	1,335	14	1,369	3,847	39	3,886	35.2
Inventories.....	3,879	39	3,918	12,614	114	12,728	30.8
Capital assets less reserve for depreciation and depletion.....	11,640	163	11,803	28,235	226	28,461	41.5
Tax-exempt investments <sup>3</sup> .....	827	8	835	1,973	4	1,977	42.2
Taxable investments.....	4,516	25	4,541	7,181	87	7,268	62.5
Notes and accounts receivable.....	.....	.....	.....	9,572	96	9,668	41.9
Miscellaneous assets <sup>4</sup> .....	5,627	89	5,716	6,860	66	6,926	34.4
Total assets <sup>5</sup> .....	27,844	338	28,182	70,282	632	70,914	39.7
Total assets <sup>5</sup> less taxable investments.....	23,327	314	23,641	63,101	545	63,646	37.1
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	22,729	213	22,942	.....	.....	70,118	32.7
Interest received from taxable investments.....	235	1	236	.....	.....	459	51.4
Interest received from tax-exempt investments.....	35	0	35	.....	.....	92	38.0
Cash dividends received.....	427	3	430	.....	.....	584	73.6
Interest paid.....	279	3	282	.....	.....	712	39.6
Taxes other than income tax <sup>7</sup> .....	239	2	241	.....	.....	617	39.1
Income tax <sup>8</sup> .....	201	2	203	.....	.....	544	37.3
Depreciation and depletion.....	835	11	846	.....	.....	2,918	41.9
Cash dividends paid.....	1,556	16	1,572	.....	.....	3,159	49.8
Compiled net profit or loss <sup>9</sup> .....	2,430	19	2,449	.....	.....	5,081	48.2
Income derived from operations <sup>10</sup> .....	1,811	16	1,827	.....	.....	4,114	44.4
Corporate savings <sup>11</sup> .....	673	1	674	.....	.....	1,378	48.9

## PART II, 1933

	78 largest manufacturing corporations			All manufacturing corporations			Concentration ratio: 78 largest to all manufacturing corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under \$10,000,000	Adjusted totals	Corporations <sup>1</sup> submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash <sup>2</sup> .....	1,288	13	1,301	3,081	25	3,106	41.8
Inventories.....	2,664	26	2,630	8,084	65	8,149	32.3
Capital assets less reserve for depreciation and depletion.....	11,104	140	11,244	24,384	171	24,555	45.8
Tax-exempt investments <sup>3</sup> .....	605	6	611	1,983	4	1,987	30.7
Taxable investments.....	6,753	23	6,776	9,499	70	9,569	70.8
Notes and accounts receivable.....	2,900	29	2,929	6,764	54	6,818	43.0
Miscellaneous assets <sup>4</sup> .....	957	23	980	3,955	67	4,022	24.4
Total assets <sup>5</sup> .....	26,201	270	26,471	57,753	462	58,215	45.5
Total assets <sup>5</sup> less taxable investments.....	19,458	237	19,695	48,254	386	48,640	40.5
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	11,465	101	11,566	.....	.....	34,213	33.8
Interest received from taxable investments.....	117	1	118	.....	.....	293	28.1
Interest received from tax-exempt investments <sup>7</sup> .....	41	0	41	.....	.....	80	51.2
Cash dividends received.....	106	1	107	.....	.....	160	66.9
Interest paid.....	209	2	211	.....	.....	460	45.9
Taxes other than income tax <sup>8</sup> .....	257	3	260	.....	.....	615	40.3
Income tax <sup>9</sup> and excess-profits tax.....	60	1	61	.....	.....	207	29.5
Depreciation and depletion.....	703	9	712	.....	.....	1,633	43.6
Cash dividends paid.....	596	5	602	.....	.....	1,170	51.5
Compiled net profit or loss <sup>9</sup> .....	305	3	308	.....	.....	444	49.4
Income derived from operations <sup>10</sup> .....	190	2	192	.....	.....	254	75.6
Corporate savings <sup>11</sup> .....	-551	-1	-555	.....	.....	-933	38.0

For footnotes, see p. 289.

TABLE III-B.—*Derivation of the concentration ratios, and the totals for asset items and selected income-statement items for transportation and other public utility corporations in the 200 largest nonfinancial corporations and all transportation and other public utility corporations, 1929 and 1933*

## PART I, 1929

	92 largest transportation and other public utility corporations			All transportation and other public utility corporations			Concentration ratio: 92 largest to all transportation and other public utility corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under \$14,025,000 <sup>a</sup>	Adjusted totals	Corporations <sup>1</sup> submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets <sup>b</sup>	Totals with balance-sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash <sup>2</sup> .....	1,257	13	1,270	1,634	49	1,683	75.5
Inventories.....	939	9	948	1,119	0	1,119	84.7
Capital assets less reserve for depreciation and depletion .....	43,191	653	43,844	52,204	1,358	53,562	81.9
Tax-exempt investments <sup>3</sup> .....	101	1	102	287	21	308	33.1
Taxable investments.....	8,425	49	8,474	9,326	345	9,671	87.6
Notes and accounts receivable.....				3,974	119	4,093	
Miscellaneous assets <sup>4</sup> .....	10,200	53	10,253	9,248	442	9,690	74.4
Total assets <sup>5</sup> .....	64,113	778	64,891	77,792	2,334	80,126	81.0
Total assets <sup>5</sup> less taxable investments.....	55,688	729	56,417	68,466	1,989	70,455	80.1
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	11,900	112	12,012			14,834	81.0
Interest received from taxable investments.....	268	2	270			333	81.1
Interest received from tax-exempt investments <sup>7</sup> .....	23	0	23			29	73.3
Cash dividends received.....	779	5	784			832	94.2
Interest paid.....	1,202	12	1,214			1,452	83.6
Taxes other than income tax <sup>8</sup> .....	587	6	593			694	85.4
Income tax <sup>9</sup> .....	177	2	179			222	80.6
Depreciation and depletion.....	736	10	746			1,011	73.8
Cash dividends paid.....	1,757	18	1,775			2,063	84.8
Compiled net profit or loss <sup>9</sup> .....	2,434	19	2,453			2,763	88.8
Income derived from operations <sup>10</sup> .....	2,389	22	2,411			2,799	86.1
Corporate savings <sup>11</sup> .....	500	—1	499			448	111.4

## PART II, 1933

	96 largest transportation and other public utility corporations			All transportation and other public utility corporations			Concentration ratio: 96 largest to all transportation and other public utility corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under \$10,000,000	Adjusted totals	Corporations submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
Millions of dollars							
ASSET ITEMS							
Cash <sup>1</sup> .....	1,044	10	1,054	1,299	65	1,355	77.6
Inventories.....	638	6	644	741	0	741	86.9
Capital assets less reserve for depreciation and depletion.....	45,080	570	45,650	50,141	1,504	51,645	88.4
Tax-exempt investments <sup>3</sup> .....	85	1	86	156	7	163	44.6
Taxable investments.....	10,142	49	10,191	11,138	824	11,962	85.2
Notes and accounts receivable.....	1,878	19	1,897	2,210	113	2,323	81.7
Miscellaneous assets <sup>4</sup> .....	3,923	-8	3,915	3,343	1,009	4,352	90.0
Total assets <sup>5</sup> .....	62,787	647	63,434	69,049	3,522	72,571	87.4
Total assets <sup>5</sup> less taxable investments.....	52,646	597	53,243	57,911	2,698	60,609	87.8
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	7,543	66	7,609			9,769	77.9
Interest received from taxable investments.....	222	1	223			231	96.5
Interest received from tax-exempt investments <sup>7</sup> .....	18	0	18			19	94.7
Cash dividends received.....	292	2	294			311	94.5
Interest paid.....	1,349	13	1,362			1,553	87.7
Taxes other than income tax <sup>8</sup> .....	575	6	581			678	85.7
Income tax <sup>9</sup> and excess-profits tax.....	67	1	68			93	73.1
Depreciation and depletion.....	780	10	790			1,012	78.1
Cash dividends paid.....	832	8	840			1,000	84.0
Compiled net profit or loss <sup>9</sup> .....	182	2	184			244	75.4
Income derived from operations <sup>10</sup> .....	932	11	943			1,143	82.5
Corporate savings <sup>11</sup> .....	-717	-7	-724			-849	85.3

For footnotes, see p. 289.



TABLE III-C.—Derivation of the concentration ratios, and the totals for asset items and selected income-statement items for transportation corporations in the 200 largest nonfinancial corporations and all transportation corporations, 1929 and 1933

## PART I, 1929

	49 largest transportation corporations			All transportation corporations			Concentration ratio: 49 largest to all transportation corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under \$14,023,000 *	Adjusted totals	Corporations <sup>1</sup> submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets <sup>2</sup>	Totals with balance-sheet items adjusted	
Millions of dollars							
ASSET ITEMS							
Cash <sup>2</sup> .....	646	6	652	(12)	(12)	(12)	(12)
Inventories.....	460	5	465	(12)	(12)	(12)	(12)
Capital assets less reserve for depreciation and depletion.....	24,123	338	24,463	(12)	(12)	(12)	(12)
Tax-exempt investments <sup>3</sup> .....	71	1	72	(12)	(12)	(12)	(12)
Taxable investments.....	2,754	15	2,769	(12)	(12)	(12)	(12)
Notes and accounts receivable.....	6,712	57	6,769	(12)	(12)	(12)	(12)
Miscellaneous assets <sup>4</sup> .....							
Total assets <sup>5</sup> .....	34,708	422	35,190	(12)	(12)	(12)	(12)
Total assets <sup>5</sup> less taxable investments.....	32,014	407	32,421	(12)	(12)	(12)	(12)
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	6,939	65	7,004			9,193	76.2
Interest received from taxable investments.....	120	1	121			157	77.1
Interest received from tax-exempt investments <sup>7</sup> .....	17	0	17			21	81.0
Cash dividends received.....	250	2	252			239	(12)
Interest paid.....	640	6	646			778	83.0
Taxes other than income tax <sup>8</sup> .....	341	3	344			406	84.7
Income tax <sup>9</sup> .....	92	1	93			116	80.2
Depreciation and depletion.....	221	3	224			300	57.4
Cash dividends paid.....	574	6	580			741	78.3
Compiled net profit or loss <sup>10</sup> .....	1,099	9	1,108			1,230	90.1
Income derived from operations <sup>11</sup> .....	1,260	11	1,271			1,475	86.2
Corporate savings <sup>12</sup> .....	433	2	435			373	116.6

## PART II, 1933

	48 largest transportation corporations			All transportation corporations			Concentration ratio: 48 largest to all transportation corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under \$10,000,000	Adjusted totals	Corporations <sup>1</sup> submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
Millions of dollars							
ASSET ITEMS							
Cash <sup>2</sup> .....	507	5	512	669	34	703	72.8
Inventories.....	280	3	283	358	0	358	79.1
Capital assets less reserve for depreciation and depletion.....	24,748	313	25,061	26,301	789	27,090	92.5
Tax-exempt investments <sup>3</sup> .....	40	0	40	114	5	119	33.6
Taxable investments.....	4,806	23	4,829	4,834	358	5,192	93.0
Notes and accounts receivable.....	458	5	463	598	30	628	73.7
Miscellaneous assets <sup>4</sup> .....	2,054	-10	2,044	1,275	526	1,801	(12)
Total assets <sup>5</sup> .....	32,893	339	33,232	34,149	1,742	35,891	92.6
Total assets <sup>5</sup> less taxable investments.....	28,087	316	28,403	29,315	1,384	30,699	92.5
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	3,681	32	3,713			5,222	71.1
Interest received from taxable investments.....	77	0	77			80	96.2
Interest received from tax-exempt investments <sup>7</sup> .....	7	0	7			8	80.0
Cash dividends received.....	77	0	77			75	(12)
Interest paid.....	672	7	679			714	91.3
Taxes other than income tax <sup>8</sup> .....	269	3	272			321	84.7
Income tax <sup>9</sup> and excess-profits tax.....	15	0	15			26	57.7
Depreciation and depletion.....	161	2	163			330	78.5
Cash dividends paid.....	141	1	142			193	73.6
Compiled net profit or loss <sup>10</sup> .....	-150	-2	-152			-207	73.4
Income derived from operations <sup>11</sup> .....	243	5	248			316	101.2
Corporate savings <sup>12</sup> .....	-306	-3	-309			-426	72.5

For footnotes, see p. 289.

TABLE III-D.—*Derivation of the concentration ratios, and the totals for asset items and selected income statement items for public utility corporations other than transportation in the 200 largest nonfinancial corporations and all public utility corporations other than transportation, 1929 and 1933*

poration, 1929 and 1930

PART I, 1929

	43 largest public utility corporations			All public utility corporations			Concentration ratio: 43 largest to all public utility corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under \$14,023,000 <sup>a</sup>	Adjusted totals	Corporations <sup>1</sup> submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets <sup>b</sup>	Totals with balance-sheet items adjusted	
Millions of dollars							
ASSET ITEMS							
Cash <sup>2</sup> .....	612	6	618	(12)	(12)	(12)	(12)
Inventories .....	478	5	483	(12)	(12)	(12)	(12)
Capital assets less reserve for depreciation and depletion .....	19,066	315	19,381	(12)	(12)	(12)	(12)
Tax-exempt investments <sup>3</sup> .....	29	0	29	(12)	(12)	(12)	(12)
Taxable investments .....	5,671	33	5,704	(12)	(12)	(12)	(12)
Notes and accounts receivable .....	3,488	-3	3,485	(12)	(12)	(12)	(12)
Miscellaneous assets <sup>4</sup> .....							
Total assets <sup>5</sup> .....	29,344	356	29,700	(12)	(12)	(12)	(12)
Total assets <sup>5</sup> less taxable investments .....	23,673	322	23,996	(12)	(12)	(12)	(12)
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	4,961	47	5,008			5,641	88.8
Interest received from taxable investments .....	148	1	149			176	84.7
Interest received from tax-exempt investments <sup>7</sup> .....	6	0	6			9	66.7
Cash dividends received .....	529	3	532			593	89.7
Interest paid .....	562	6	568			673	84.4
Taxes other than income tax .....	246	2	248			288	86.1
Income tax <sup>8</sup> .....	85	1	86			107	80.4
Depreciation and depletion .....	515	7	522			622	83.9
Cash dividends paid .....	1,184	12	1,196			1,352	88.5
Compiled net profit or loss <sup>9</sup> .....	1,335	11	1,346			1,533	87.8
Income derived from operations <sup>10</sup> .....	1,129	12	1,141			1,321	86.4
Corporate savings <sup>11</sup> .....	66	-2	64			74	86.5

## PART II, 1933

	48 largest public utility corporations			All public utility corporations			Concentration ratio: 48 largest to all public utility corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under \$10,000,000	Adjusted totals	Corporations <sup>1</sup> submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
Millions of dollars							
ASSET ITEMS							
Cash <sup>2</sup> .....	534	5	539	621	31	652	82.7
Inventories .....	358	4	362	383	0	383	94.5
Capital assets less reserve for depreciation and depletion .....	20,332	277	20,589	23,840	715	24,555	83.8
Tax-exempt investments <sup>3</sup> .....	45	0	45	72	2	74	60.8
Taxable investments .....	5,336	26	5,362	6,304	466	6,770	79.2
Notes and accounts receivable .....	1,420	14	1,434	1,612	82	1,694	84.7
Miscellaneous assets <sup>4</sup> .....	1,869	2	1,871	2,068	184	2,252	73.3
Total assets <sup>5</sup> .....	29,894	308	30,202	34,900	1,780	36,680	82.3
Total assets <sup>5</sup> less taxable investments .....	24,559	281	24,840	28,596	1,314	29,910	83.0
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	3,862	34	3,896			4,547	85.7
Interest received from taxable investments .....	145	1	146			151	96.7
Interest received from tax-exempt investments <sup>7</sup> .....	9	0	9			9	100.0
Cash dividends received .....	215	1	216			235	91.9
Interest paid .....	677	7	684			809	84.5
Taxes other than income tax .....	306	3	309			357	86.6
Income tax <sup>8</sup> and excess-profits tax .....	52	1	53			66	80.3
Depreciation and depletion .....	589	8	597			682	87.5
Cash dividends paid .....	691	7	698			807	86.5
Compiled net profit or loss <sup>9</sup> .....	332	4	336			451	74.5
Income derived from operations <sup>10</sup> .....	288	8	296			399	74.6
Corporate savings <sup>11</sup> .....	-411	-4	-415			-422	98.3

For footnotes, see p. 289.

TABLE III-E.—Derivation of the concentration ratios, and the totals for asset items and selected income-statement items for "other" corporations in the 200 largest nonfinancial corporations and all "other" nonfinancial corporations 1929 and 1933

PART I, 1929

	26 largest "other" corporations			All "other" nonfinancial corporations			Concentration ratio: 26 largest to all "other" nonfinancial corporations (percent)
	Tabulated total	Adjustment for unconsolidated subsidiaries with total assets under \$14,023,000 <sup>a</sup>	Adjusted total	Corporations <sup>1</sup> submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets <sup>b</sup>	Totals-with balance sheet items adjusted	
Millions of dollars							
ASSET ITEMS							
Cash <sup>2</sup> .....	271	3	277	2,419	73	2,492	11.1
Inventories.....	730	7	737	7,257	210	7,467	9.9
Capital assets less reserve for depreciation and depletion.....	2,666	38	2,704	18,188	418	18,606	14.5
Tax-exempt investments <sup>3</sup> .....	73	1	74	698	5	703	10.5
Taxable investments.....	769	4	773	5,316	170	5,486	14.1
Notes and accounts receivable.....	946	13	959	9,134	274	9,408	7.0
Miscellaneous assets <sup>4</sup> .....				3,968	259	4,227	
Total assets <sup>5</sup> .....	5,438	66	5,524	46,980	1,469	48,389	11.4
Total assets <sup>5</sup> less taxable investments.....	4,690	61	4,751	41,664	1,239	42,903	11.1
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	4,296	40	4,336			54,034	8.0
Interest received from taxable investments.....	35	0	35			275	12.7
Interest received from tax-exempt investments <sup>7</sup> .....	6	0	6			30	20.0
Cash dividends received.....	54	0	54			206	26.2
Interest paid.....	71	1	72			596	12.1
Taxes other than income tax <sup>8</sup> .....	58	1	59			418	14.1
Income tax <sup>9</sup> .....	37	0	37			304	18.1
Depreciation and depletion.....	132	2	134			1,088	12.3
Cash dividends paid.....	305	3	308			1,341	23.0
Compiled net profit or loss <sup>10</sup> .....	387	3	390			1,478	26.4
Income derived from operations <sup>11</sup> .....	326	4	330			1,359	24.3
Corporate savings <sup>12</sup> .....	45	0	45			—67	(17) — 67.2

PART II, 1933

	26 largest "other" corporations			All "other" nonfinancial corporations			Concentration ratio: 26 largest to all "other" nonfinancial corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under \$10,000,000	Adjusted total	Corporations <sup>1</sup> submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
Millions of dollars							
ASSET ITEMS							
Cash <sup>2</sup> .....	224	2	226	1,610	43	1,653	13.7
Inventories.....	587	6	593	4,631	107	4,738	12.5
Capital assets less reserve for depreciation and depletion.....	3,016	38	3,054	16,721	435	17,156	17.8
Tax-exempt investments <sup>3</sup> .....	105	1	106	671	4	675	15.7
Taxable investments.....	783	4	787	4,650	146	4,796	18.8
Notes and accounts receivable.....	696	7	703	5,626	132	5,758	11.6
Miscellaneous assets <sup>4</sup> .....	273	0	273	2,620	119	2,739	10.0
Total assets <sup>5</sup> .....	5,654	58	5,712	35,929	1,066	36,955	15.5
Total assets <sup>5</sup> less taxable investments.....	4,871	54	4,925	31,879	850	32,739	15.0
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services <sup>6</sup> .....	2,785	25	2,810			29,442	9.5
Interest received from taxable investments.....	20	0	20			125	15.6
Interest received from tax-exempt investments <sup>7</sup> .....	5	0	5			51	16.1
Cash dividends received.....	15	0	15			73	20.5
Interest paid.....	54	1	55			434	12.7
Taxes other than income tax <sup>8</sup> .....	61	1	62			393	15.8
Income tax <sup>9</sup> and excess-profits tax.....	13	0	13			87	14.9
Depreciation and depletion.....	129	2	131			805	16.3
Cash dividends paid.....	82	1	83			353	21.7
Compiled net profit or loss <sup>10</sup> .....	40	0	40			-548	(3) - 7.2
Income derived from operations <sup>11</sup> .....	41	1	42			-433	(3) - 9.7
Corporate savings <sup>12</sup> .....	-55	-1	-56			-1,018	(3) - 10.8

<sup>a</sup> For reason and methods for adjusting unconsolidated subsidiaries with total assets under the specified minimum, see section 3 of this appendix.<sup>b</sup> For reason and methods for adjusting balance-sheet items for corporations not submitting balance sheets, see section 2 of this appendix.<sup>1</sup> Source: *Statistics of Income*.<sup>2</sup> Includes cash in till and deposits in bank.<sup>3</sup> Includes obligations of States and Territories or minor political subdivisions, securities issued under the Federal Farm Loan Act, and obligations of the United States or its possessions.<sup>4</sup> Largely composed of goodwill, patent rights, copyrights, etc.<sup>5</sup> Reserves for depreciation and depletion are deducted from total assets, as well as from capital assets.<sup>6</sup> Sum of gross sales where inventories are an income-determining factor and gross receipts from operations where inventories are not an income-determining factor.<sup>7</sup> Taxes paid, other than Federal income and excess-profit taxes.<sup>8</sup> Federal income tax, plus excess-profits tax in 1933.<sup>9</sup> Statutory net income or deficit, plus interest on tax-exempt investments, plus dividends from domestic corporations, which are also nontaxable income.<sup>10</sup> Compiled net profit, plus interest paid, less income tax, less interest received on taxable investments, less interest received on tax-exempt investments, less cash dividends received. This amounts to statutory net income, plus interest paid, less income tax, less interest received on taxable investments.<sup>11</sup> Compiled net profit, less income and excess-profit taxes paid, less cash dividends paid.<sup>12</sup> Not available.<sup>13</sup> See p. 281 et seq. of the text.

TABLE IV.—*Derivation of concentration ratios from the totals for the 200 largest and all nonfinancial corporations, selected asset items, 1929-33*

[Money figures in millions of dollars]

	1929	1930	1931	1932	1933
<b>TOTAL ASSETS<sup>1</sup></b>					
200 largest nonfinancial corporations.....	98,597	107,073	101,662	96,690	95,617
All other nonfinancial corporations <sup>2</sup> .....	100,832	91,258	76,766	77,560	72,104
Total nonfinancial corporations.....	199,429	198,331	178,428	174,250	167,721
Concentration ratio: 200 largest to all nonfinancial corporations (percent).....	49.4	54.0	57.0	55.5	57.0
<b>TOTAL ASSETS<sup>1</sup> LESS TAXABLE INVESTMENTS</b>					
200 largest nonfinancial corporations.....	81,809	91,364	85,169	79,916	77,863
All other nonfinancial corporations <sup>2</sup> .....	92,195	76,846	68,175	65,973	64,125
Total nonfinancial corporations.....	177,004	168,210	153,344	145,889	141,988
Concentration ratio: 200 largest to all nonfinancial corporations (percent).....	47.9	54.3	55.5	54.8	54.8
<b>CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION</b>					
200 largest nonfinancial corporations.....	58,351	62,709	62,638	60,540	59,949
All other nonfinancial corporations <sup>2</sup> .....	42,278	41,628	36,368	35,404	33,407
Total nonfinancial corporations.....	100,629	104,337	99,006	95,944	93,356
Concentration ratio: 200 largest to all nonfinancial corporations (percent).....	58.0	60.1	63.3	63.1	64.2

For footnotes, see p. 291.

TABLE V-A.—*Derivation of concentration ratios from the totals for the 75 largest and all manufacturing corporations, selected asset items, 1929 and 1933*

[Money figures in millions of dollars]

	1929	1933
<b>TOTAL ASSETS<sup>1</sup></b>		
75 largest manufacturing corporations.....	27,495	26,235
All other manufacturing corporations <sup>2</sup> .....	43,419	31,980
Total manufacturing corporations.....	70,914	58,215
Concentration ratio: 75 largest to all manufacturing corporations (percent).....	38.8	45.1
<b>TOTAL ASSETS<sup>1</sup> LESS TAXABLE INVESTMENTS</b>		
75 largest manufacturing corporations.....	23,064	19,549
All other manufacturing corporations <sup>2</sup> .....	40,582	29,091
Total manufacturing corporations.....	63,646	48,640
Concentration ratio: 75 largest to all manufacturing corporations (percent).....	36.2	40.2
<b>CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION</b>		
75 largest manufacturing corporations.....	11,534	11,178
All other manufacturing corporations <sup>2</sup> .....	16,927	13,377
Total manufacturing corporations.....	28,461	24,555
Concentration ratio: 75 largest to all manufacturing corporations (percent).....	40.5	45.5

For footnotes, see p. 291.

TABLE V-B.—*Derivation of the concentration ratios from the totals for the 85 largest and all transportation and other public utility corporations selected asset items 1929 and 1933*

[Money figures in millions of dollars]

	1929	1933
<b>TOTAL ASSETS<sup>1</sup></b>		
85 largest transportation and other public utility corporations.....	64,116	62,303
All other transportation and other public utility corporations <sup>2</sup> .....	16,010	10,268
Total transportation and other public utility corporations.....	80,126	72,571
Concentration ratio: 85 largest to all transportation and other public utility corporations (percent).....	80.0	85.9
<b>TOTAL ASSETS<sup>1</sup> LESS TAXABLE INVESTMENTS</b>		
85 largest transportation and other public utility corporations.....	55,663	52,197
All other transportation and other public utility corporations <sup>2</sup> .....	14,792	8,412
Total transportation and other public utility corporations.....	70,455	60,609
Concentration ratio: 85 largest to all transportation and other public utility corporations (percent).....	79.0	86.1
<b>CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION</b>		
85 largest transportation and other public utility corporations.....	43,460	44,767
All other transportation and other public utility corporations <sup>2</sup> .....	10,102	6,878
Total transportation and other public utility corporations.....	53,562	51,645
Concentration ratio: 85 largest to all transportation and other public utility corporations (percent).....	81.1	86.7

For footnotes, see p. 291.

TABLE V-C.—*Derivation of concentration ratios from the totals for the 45 largest and all transportation corporations, selected asset items, 1929 and 1933*

[Money figures in millions of dollars]

	1929	1933
<b>TOTAL ASSETS<sup>1</sup></b>		
45 largest transportation corporations.....	34,749	32,976
All other transportation corporations <sup>2</sup> .....	(3)	2,915
Total transportation corporations.....	(3)	35,891
Concentration ratio: 45 largest to all transportation corporations (percent).....	(3)	91.9
<b>TOTAL ASSETS<sup>1</sup> LESS TAXABLE INVESTMENTS</b>		
45 largest transportation corporations.....	31,991	28,152
All other transportation corporations <sup>2</sup> .....	(3)	2,547
Total transportation corporations.....	(3)	30,699
Concentration ratio: 45 largest to all transportation corporations (percent).....	(3)	91.7
<b>CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION</b>		
45 largest transportation corporations.....	24,079	24,826
All other transportation corporations <sup>2</sup> .....	(3)	2,264
Total transportation corporations.....	(3)	27,090
Concentration ratio: 45 largest to all transportation corporations (percent).....	(3)	91.6

For footnotes, see p. 291.

TABLE V-D.—*Derivation of concentration ratios from the totals for the 40 largest and all public utility corporations other than transportation, selected asset items, 1929 and 1933*

[Money figures in millions of dollars]

	1929	1933
<b>TOTAL ASSETS <sup>1</sup></b>		
40 largest public utility corporations.....	29,367	29,327
All other public utility corporations <sup>2</sup> .....	(3)	7,353
Total public utility corporations.....	(1)	36,680
Concentration ratio: 40 largest to all public utility corporations (percent).....	(3)	89.0
<b>TOTAL ASSETS <sup>1</sup> LESS TAXABLE INVESTMENTS</b>		
40 largest public utility corporations.....	23,672	24,045
All other public utility corporations <sup>2</sup> .....	(3)	5,864
Total public utility corporations.....	(3)	29,909
Concentration ratio: 40 largest to all public utility corporations (percent).....	(3)	80.4
<b>CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION</b>		
40 largest public utility corporations.....	19,381	19,941
All other public utility corporations <sup>2</sup> .....	(3)	4,614
Total public utility corporations.....	(3)	24,555
Concentration ratio: 40 largest to all public utility corporations (percent).....	(3)	81.2

TABLE V-E.—*Derivation of concentration ratios from the totals for the 25 largest and all "other" nonfinancial corporations, selected asset items, 1929 and 1933*

[Money figures in millions of dollars]

	1929	1933
<b>TOTAL ASSETS <sup>1</sup></b>		
25 largest "other" corporations.....	5,422	5,618
All remaining "other" corporations <sup>2</sup> .....	42,967	31,317
Total "other" corporations.....	48,389	36,935
Concentration ratio: 25 largest to all "other" corporations (percent).....	11.2	15.2
<b>TOTAL ASSETS <sup>1</sup> LESS TAXABLE INVESTMENTS</b>		
25 largest "other" corporations.....	4,667	4,836
All remaining "other" corporations <sup>2</sup> .....	38,236	27,963
Total "other" corporations.....	42,903	32,799
Concentration ratio: 25 largest to all "other" corporations (percent).....	10.9	14.8
<b>CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION</b>		
25 largest "other" corporations.....	2,652	2,978
All remaining "other" corporations <sup>2</sup> .....	15,954	14,178
Total "other" corporations.....	18,606	17,156
Concentration ratio: 25 largest to all "other" corporations (percent).....	14.3	17.4

<sup>1</sup> Reserves for depreciation and depletion have been deducted from total assets as well as from capital assets.<sup>2</sup> This is derived by deducting the totals for the 200 from the totals for all corporations.<sup>3</sup> Not available.

## 2. Adjustment for Corporations Not Submitting Balance Sheets

The totals, by industrial groups, for all corporations submitting income-tax returns were available for income-statement items but not for balance-sheet items. The balance-sheet items for all corporations were derived from the totals for corporations submitting balance sheets by making a simple assumption: That the proportion understated in the balance-sheet item equals the proportion understated in a related income-statement item. The procedure for adjustment was as follows:

<sup>11a</sup> Though this is a very crude procedure, the error introduced in the final results is not significant because, for the income-statement items, at least 95 percent of the total was covered by the returns of corporations submitting balance sheets, in practically all cases.

Each balance-sheet item was paired with the income-statement item most closely related to it.<sup>11a</sup> The paired list used was:

Balance-sheet item:	Income-statement item:
Cash.	Receipts.
Inventories.	Gross sales.
Tax-exempt investments.	Tax-exempt interest.
Taxable investments.	Dividends received.
Capital assets.	Depreciation and depletion.
Total assets.	Total compiled receipts.

The basic assumption for the first pair of items is that the ratio:

All receipts
Receipts reported for corporations submitting balance sheets

is equal to the ratio:

All cash
Cash reported by all corporations submitting balance sheets.

The first ratio is computed from figures published in *Statistics of Income*. It is called the adjustment ratio and is shown by industrial groups in table VI.

TABLE VI.—*Adjustment factors applied to selected asset items for corporations not submitting balance sheets, all nonfinancial corporations, by industrial groups, 1929-33*

	All nonfinancial corporations	Manufacturing corporations	Transportation and other public utility corporations	Transportation corporations	Other public utility corporations	All other nonfinancial corporations
<b>Total assets:</b>						
1929.....	1.022	1.009	1.030	(1)	(1)	1.030
1930.....	1.022	1.009	1.030	1.030	1.030	1.030
1931.....	1.017	1.013	1.009	1.009	1.009	1.038
1932.....	1.029	1.006	1.049	1.049	1.049	1.027
1933.....	1.031	1.008	1.051	1.051	1.051	1.028
<b>Taxable investments:</b>						
1929.....	1.028	1.012	1.037	(1)	(1)	1.032
1930.....	1.029	1.012	1.037	1.037	1.037	1.034
1931.....	1.013	1.012	1.006	1.006	1.006	1.032
1932.....	1.034	1.002	1.059	1.059	1.059	1.035
1933.....	1.042	1.008	1.071	1.074	1.074	1.036
<b>Total assets less taxable investments:</b>						
1929.....	1.022	1.009	1.029	(1)	(1)	1.030
1930.....	1.021	1.009	1.028	1.028	1.028	1.029
1931.....	1.018	1.013	1.010	1.010	1.010	1.039
1932.....	1.028	1.007	1.047	1.047	1.047	1.026
1933.....	1.029	1.008	1.047	1.047	1.047	1.027
<b>Capital assets:</b>						
1929.....	1.020	1.008	1.026	(1)	(1)	1.023
1930.....	1.021	1.008	1.026	1.026	1.026	1.026
1931.....	1.014	1.009	1.011	1.011	1.011	1.031
1932.....	1.022	1.006	1.029	1.029	1.029	1.023
1933.....	1.023	1.007	1.030	1.030	1.030	1.026

<sup>1</sup> Balance-sheet items for transportation and other public utilities were not broken down in 1929, so no adjustment factor was used.

Transportation companies and other public utilities are reported together in *Statistics of Income*, but are separable on work sheets of the Bureau of Internal Revenue for all years except 1929. However, income-statement items for corporations submitting balance sheets were not available in separable form, so the adjustment ratio was determined for the two industrial groups combined and applied to the two combined and separately. In no case could the income-statement items for corporations submitting balance sheets be obtained for 1929 or 1930 so the adjustment ratios

shown on the table were estimated from the adjustment ratios of other years.

No adjustment ratio was computed for all corporations together.<sup>12</sup> The adjustment increments for each year for each industrial group were computed and are shown for 2 years on tables II and III with the adjusted and unadjusted items. On these tables the adjustment increments of all the industrial groups are summed to get the adjustment increment for all corporations for each item.

A test was devised for the internal consistency of the balance-sheet part of this set of adjustments in each unit of tables II and III. Miscellaneous assets is derived by subtraction, to make the total assets equal to the sum of the several asset items. This is true of both the adjusted and the unadjusted columns, so miscellaneous assets can be assigned an adjustment increment such that the table will be internally consistent. A test of the reasonableness of the set of adjustments may be based on the reasonableness of the adjustment for miscellaneous assets. If it is negative, or large compared to unadjusted miscellaneous assets, then the adjustments for either the total assets, or the other asset items, or both, are in some measure unreasonable, and this inconsistency is magnified in the residual item. If the adjustment is positive and reasonably small the system of adjustments is consistent; the adjustments are accurate or the errors are compensating.

The inferred adjustments for miscellaneous assets are presented in convenient form in table VII. From the table it is evident that the adjustments for 1933 were less consistent than those for 1929 and that the inaccuracies in 1933 were largely traceable to the transportation and other public utility groups.

### 3. Adjustment For Omission of Unconsolidated Subsidiaries With Total Assets Below the Minimum

In order to cut down the amount of clerical work it was necessary to omit all corporations subsidiary to the 200 largest whose total assets were less than \$10,000,000 in 1933. An analogous minimum had to be found for 1929 to correspond to \$10,000,000 in 1933, in view of the changing value of the dollar and the changing size of corporations.

The procedure was as follows:

A sample of 20 corporations with total assets in

TABLE VII.—*Inferred adjustment for miscellaneous assets—test for internal consistency*

<i>Industrial group and year</i>	<i>Percent adjusted</i>
All industrial groups:	
1929 .....	3.8
1933 .....	11.3
Manufacturing:	
1929 .....	1.0
1933 .....	0.7
Transportation and other public utilities:	
1929 .....	4.8
1933 .....	30.2
Transportation:	
1929 .....	
1933 .....	41.3
Other public utilities:	
1929 .....	
1933 .....	23.4
Other corporations:	
1929 .....	8.7
1933 .....	4.5

1933 between 10 and 11 million dollars was taken, in correct proportion for industrial groups. For these the ratio of total assets less taxable investments to total assets was computed. After multiplying by \$10,000,000, the total assets less taxable investments of a representative \$10,000,000 firm was obtained. Then for all companies in *Statistics of Income* the ratio of total assets less taxable investments, 1929 to 1933, was obtained. Next, this ratio was multiplied by total assets less taxable investments for a typical \$10,000,000 corporation in 1933, yielding a figure for total assets less taxable investments for a typical analogous firm in 1929. Then, for 1929, a sample of firms with total assets of 12 to 13 millions of dollars<sup>13a</sup> was chosen and a ratio of total assets less taxable investments to total assets was computed. This was applied to the last figure derived above, and a new minimum figure for total assets was obtained for 1929. This was computed at \$14,023,000.

This minimum defined a similar number of returns in the 2 years. Roughly estimated, the total number of corporations submitting balance sheets with total assets over the minimum was 1,175 in 1929 and 1,100 in 1933.

The omission of all "small" unconsolidated subsidiaries would have had a significant effect; the concentration ratios would have been understated. The different minimum sizes of total assets were designed to eliminate any possible bias over time due to the size of unconsolidated subsidiaries included in the totals for the 200 largest nonfinancial corporations.

There is no reliable method for accurately correcting for this omission short of an exhaustive search for, and tabulation of, the smaller corporations. A study was made of the frequency distributions of all unconsolidated subsidiaries for total assets and capital assets, by total asset classes. No tendency was well enough

<sup>12</sup> Under certain special conditions the same procedure could have been followed for all corporations as a unit, as well as by industrial group, without introducing a discrepancy. For the adjustment to be internally consistent the sum of all the industrial groups should equal the total of all nonfinancial corporations after the adjustment as well as before. This would be so if and only if the percent distribution (by industrial groups) of the figures for firms submitting balance sheets (for the item to be adjusted) were exactly equal to the corresponding percent distribution for the firms submitting balance sheets for the paired income-statement item. This procedure was followed using five significant places in the percent distribution, and the difference between the adjusted total and the sum of the adjusted industrial groups was something less than one half of one percent, on the average.

<sup>13a</sup> The estimated figure for total assets less taxable investments for a typical analogous firm in 1929.

defined to estimate the effect of unconsolidated subsidiaries below the minimum for either 1929 or 1933. Therefore, an approximate adjustment had to suffice; and a simple one was designed.

It was assumed for 1933 that the contribution to any item of all unconsolidated subsidiaries with total assets less than 10 million dollars was equal to the average contribution for each interval over the next four 10-million dollar intervals. All the unconsolidated subsidiaries with total assets between \$10,000,000 and \$50,000,000 were tabulated, and totals were obtained for the following selected items:

Capital assets.  
Taxable investments.  
Total assets.  
Gross receipts.  
Compiled net profit or loss.

The other items were adjusted by examining related items whose adjustment increment had been computed and assuming about the same relative adjustment. Thus, interest received from taxable investments and dividends received were assumed to have the same relative adjustment as taxable investments; depreciation and depletion was assumed to have the same as capital assets; and the rest of the items were assumed to have the same relative adjustments as gross receipts and total assets, which were almost the same. These estimated adjustment percentages were applied to the unadjusted totals for the 200. The adjusted totals and the increments were entered on tables II and III. The increments for the five items listed above were derived directly and entered on the tables.

The increment added to the total for each item for the 200 largest corporations was partitioned among the constituent industrial groups by assuming that the percentage distribution by industrial groups was the same before and after the adjustment.

An analogous procedure was used in 1929. The average of the three equal intervals from \$14,023,000 to \$56,092,000 in total assets was used for the estimate of all unconsolidated subsidiaries with total assets below \$14,023,000. This estimate was computed for the same items as in 1933 and the estimates for other items were derived from these estimates on the basis of the same assumptions as were made for the 1933 adjustment. The adjustment increments are included on the basic tables II and III. In table V each industrial group was assigned the same adjustment increment as it had in table II. It was assumed that the omission of a few of the smallest corporations in each industrial group did not diminish the size of the adjustment increment. For the interpolated years in table IV the adjustment is implicit in the interpolation estimates, as the interpolation index was applied to the end year totals after they had been adjusted for the omission of unconsolidated subsidiaries below the minimum.

A test for the internal consistency of the adjustments in the balance-sheet items was devised. It is the same test as was used in the adjustment for missing balance sheets.<sup>12b</sup> The adjustment for miscellaneous assets was compared with unadjusted miscellaneous assets. In a few cases there was a very small negative adjustment. These were so close to zero that the discrepancy indicated is of no material importance. None of the positive adjustments were large. The percentages are shown in table VIII.

TABLE VIII.—Adjustment for unconsolidated subsidiaries below the minimum; percentage adjustment for miscellaneous assets

Industrial group and year	Percent adjusted
All industrial groups:	
1929.....	0.9
1933.....	0.3
Manufacturing:	
1929.....	1.6
1933.....	2.4
Transportation and other public utilities:	
1929.....	0.5
1933.....	-0.2
Transportation:	
1929.....	0.8
1933.....	-0.5
Other public utilities:	
1929.....	-0.1
1933.....	0.1
Other corporations:	
1929.....	1.4
1933.....	0.0

#### 4. Problems Relating to Consolidation of Balance Sheets

The definition of corporation discussed in section 1 implies that the tabulation of the 200 largest nonfinancial corporations was made up from 200 consolidated balance sheets. Each unit of control under this ideal system would present a single balance sheet and a single income statement, for it is considered as a single corporation. As a matter of fact, the data were not available in the Bureau of Internal Revenue in this form. Companies controlled 95 percent or more by the parent and its controlled subsidiaries were actually consolidated for the most part, but other subsidiaries (by the definition here used) were not. For reasons appearing below this desired consolidation could not be approximated, so it became necessary simply to add the several items of these unconsolidated subsidiaries to those of the parent and consolidated subsidiaries, and to use these sums as estimates of the desired consolidations. The discrepancies between the actual sums and the desired consolidated totals arose out of the difference between the definition of subsidiary in this study and the Bureau of Internal Revenue definition of subsidiary for purposes of taxation.

The consolidated return as filed in the Bureau of

<sup>12b</sup> See section 2.

Internal Revenue has had all intercorporate relations between the income statement and balance sheet of the parent and the subsidiary removed, but the unconsolidated return has not. If accounts receivable and accounts payable include accounts receivable from and payable to other corporations in the same control unit, these should be deducted from the totals for the unit. But in the case of unconsolidated subsidiaries, this cannot be done. The reports to the Bureau of Internal Revenue do not distinguish between accounts payable to or receivable from a corporation in the same control unit, and those to or from any other corporation. Therefore, items subject to this type of duplication show evidence of large error (for the purposes of this report), and the following items should be read with this in mind:

- Interest received from taxable investments.
- Cash dividends received.
- Interest paid.
- Cash dividends paid.

Compiled net profits by definition includes dividends received, and is therefore subject to this type of error. The same is true of the derived items: income derived from operations, and corporate savings, each of which includes items which involve double counting.

The summation of figures for total assets does not represent complete consolidation of the balance sheet of each unit of control. Neither does the summation of total assets of all corporations reported by the Bureau of Internal Revenue represent the consolidation of control units. This discrepancy arises out of the intercorporate holdings of securities and loans within the same corporate unit which would be cancelled out in the process of consolidation. A direct comparison of the sum of the assets of the 200 largest control units and the sum of all corporations reporting to the Bureau of Internal Revenue tends to give a larger concentration ratio than would be obtained if the assets of all control units, whether in the 200 largest or not, were completely consolidated. A large part of the discrepancy arising from the lack of complete consolidation can be corrected by subtracting taxable investments, the element making the largest contribution to the discrepancy, from the figures of both the largest and all corporations. The distortion resulting from intercorporate lending within corporate units is probably small. Subtraction of the entire holdings of taxable investments overcorrects somewhat because of holdings of securities of corporations not in the same control unit. There would be no error in the concentration ratio from this source if the securities of other corporations held as investments by the 200 largest units and those held by corporations other than the 200 largest bear the same proportion to their respective total consolidated assets. This seems to be a condition

closely enough approximated to make the discrepancy arising from this source of a minor character.

The concept of "the assets of the 200 largest corporations" may now be refined. What is really meant is the arithmetic sum of all the asset items on the 200 largest nonfinancial consolidated balance sheets (and, of course, income statements). All intercompany relations within any consolidated balance sheet would be eliminated but not other intercompany relations within the 200. A distinction must be made, therefore, between this concept and the concept of a single consolidated balance sheet embracing the 200 largest consolidated balance sheets. The latter would eliminate intercorporate relations between any corporations affiliated with any of the 200 largest corporations. The latter totals would be smaller in the items mentioned above, since intercompany eliminations would have been made.

As a matter of fact, it was impossible to set up the 200 consolidated balance sheets, but departures from this desired procedure are regarded in this report as errors.

Besides the double counting that cannot be eliminated from the sum of the parent and unconsolidated subsidiaries, other errors are likely to occur. The classification of unconsolidated subsidiaries in the industrial group of their parents may change the geographical classification from that in which they are listed in *Statistics of Income*.<sup>13</sup> These shifts do not concern this report. But the industrial classifications may be, and undoubtedly often are, shifted. The unconsolidated subsidiaries were reported in their own industrial groups in *Statistics of Income*,<sup>14</sup> but in the present tabulation they were reported in the industrial group of their parent companies. The resulting industrial misclassification has been discussed in section 1, above.

## 5. Notes on the Interpolation

Three asset items, total assets, capital assets, and total assets less taxable investments, were estimated for the 200 largest corporations for the years 1930-32 on a basis comparable with table I. The procedure and assumptions were set up in consideration of the state of the data for this period, and the limited time and clerical facilities allotted to this study. Therefore, these figures are merely estimates rather than tabulated totals and they are derived by making certain specific assumptions which are subject to partial test.

Estimates were derived for each industrial group and the four estimates were summed to obtain the estimated totals for the 200. The work was shortened by omitting from consideration all unconsolidated subsidiaries and by using all the companies in the lists of the 200 largest

<sup>13</sup> The same applies to net income—net deficit classification as well.

<sup>14</sup> And therefore in the denominator of the concentration ratio.



for both 1929 and 1933 where the data were available. This procedure is justified by the small number of replacements in the list—a yearly change of 2 or 3 percent. So that all information available would be used, the yearly percent changes of all companies which reported in both of each two successive years were used. From these comparable data a chain index series was constructed for each item for each industrial group. These indexes were taken to represent the percent changes of all companies in the largest 200, including unconsolidated subsidiaries.<sup>15</sup>

The chain indexes were derived from yearly percent changes of identical companies. The actual data used were not entirely from the Bureau of Internal Revenue. Where a company was missing in a single intermediate year, or where an erratic change threw one year out of line with the two adjacent years, a comparison was made with Moody's *Manuals*. If the behavior of the data for the preceding and following years from the two sources approximately agreed,<sup>16</sup> the intermediate year was interpolated using the Moody's figures as an index of change.

This augmentation of the Bureau of Internal Revenue data had a tendency to stabilize the annual percent changes by increasing the size of the samples and by eliminating individual erratic observations. Hence the movements of the chain index were damped; the erratic quality of the index was understated. This modification of the originally designed procedure was intended to protect the annual percent changes from variation in the degree of consolidation in the returns of the same corporations in adjacent years.

The 1933 figure of this chain index on a 1929 base gave the percent change for the period 1929 through 1933. But, as a matter of fact, this percent change was accurately known, for it could easily be derived from the two tabulations for 1929 and 1933. This gave a correct index number for 1933. The crude 1933 chain index number was therefore adjusted to equal the correct index number and the earlier years were adjusted by an increment based on an assumed linearity of the drift for the period 1929–33.<sup>17</sup> After the indexes were corrected they could be multiplied by the base figure, yielding a complete set of estimates of the three asset items by industrial groups for the three interpolated years.

These estimates can be tested in various ways. If

the percent changes are truly representative of the whole 200 largest corporations, including unconsolidated subsidiaries, and the industrial percent distributions are accurate, the sum of the totals for the various industrial groups should be the same as the estimates for the 200 largest taken as a unit without regard to industrial classification. This comparison was made and is presented in table IX. The index numbers made up without regard to industrial classification were derived as described above. The absolute totals for the various industrial groups were summed, and the totals for all groups reduced to index series for comparison.

TABLE IX.—Estimates made (1) with and (2) without regard to industrial groups

Item	Method of estimating	Index numbers (1929=100)				
		1929	1930	1931	1932	1933
Total assets.....	(1)	100.0	108.6	103.1	98.1	97.0
	(2)	100.0	108.5	102.9	98.0	97.0
Capital assets.....	(1)	100.0	107.5	107.4	103.8	102.7
	(2)	100.0	107.4	106.9	103.7	102.7

This test is one-directional in nature. For the estimated figures for industrial groups to be accurate, it is a necessary, but not a sufficient condition, that the two estimates be close. If the estimates made by the two methods are close, the industrial group estimates might be accurate and they might not. But if the two estimates are not close, the industrial group estimates cannot be accurate. By definition, the closeness of the estimates for the total, with and without regard to industrial groups, is evidence in the direction of accuracy of that total. It can be seen directly that the two indexes yield the same result within rounding errors except for the middle year. The discrepancies for total assets are 0.0, 0.1, 0.2, 0.1, 0.0, and those for capital assets are 0.0, 0.1, 0.5, 0.1, 0.0. The assumption of a linear adjustment makes the end years correct. The years next to the end years are least likely to suffer from this procedure, with the middle year the least accurate. This is what is actually found. The largest errors indicated here are smaller than other errors known to exist for these estimates, so it is evident that the interpolation meets this test of consistency.

A second test of the accuracy of the interpolation may be made by further examining the internal consistency of the results. Total assets should be larger than capital assets and larger than total assets less taxable investments. The difference between total assets and total assets less taxable investments should yield a reasonable result for taxable investments. Similarly, the difference between total assets less taxable investments and capital assets should yield a reasonable result for liquid assets.<sup>18</sup> These estimates for taxable

<sup>15</sup> No independent determination of the lists of the 200 largest for the interpolated years was made.

<sup>16</sup> I. e., had approximately the same level and the same percent change for the 2-year interval.

<sup>17</sup> Hence the difference between the 1933 relative of the complete tabulation for each industrial group (1929=100) and the corresponding chain index for 1933 (1929=100) was allocated evenly over the four annual intervals. This adjustment was made necessary by at least two definable causes: (1) The number of the 200 corporations in each industrial group was not the same in 1929 and 1933 in every case, and (2) the index was not perfectly representative of the 200 parents, plus their consolidated subsidiaries, plus their unconsolidated subsidiaries of all sizes.

<sup>18</sup> Inventories, cash, notes and accounts receivable, and miscellaneous assets.

investments and liquid assets, which are implied in table IV, raise no serious problems

A third test of the accuracy of the interpolation depends on the obvious condition that any asset item for the 200 largest must be smaller than the same item for all nonfinancial corporations. This must apply to taxable investments and liquid assets as well as total assets, capital assets, and total assets less taxable investments. In every case the figures for the 200 largest were smaller than the figures for all corporations.

From the three tests described above there would seem to be little objection to the figures in table IV that

could arise from the interpolation.

Taxable investments were poorly reported and the chain index intended for interpolation had to be based on a small and somewhat erratic sample. Therefore the same index as was used to interpolate for total assets was also used to interpolate for total assets less taxable investments by applying it to the 1929 and 1933 figures for total assets less taxable investments. No inconsistency was detected in the resulting figures. Total assets and capital assets were interpolated from chain indexes made up of yearly percent changes of total assets and capital assets, respectively.

## PART II—FINANCIAL CORPORATIONS

A crude investigation was made of the degree of concentration of financial corporations in 1933. The list examined was composed of the 50 largest financial corporations in 1933, excluding unconsolidated subsidiaries. Of the 50, 24 were banks, 17 were insurance companies,<sup>19</sup> and the remaining 9 were "other financials". The list of the 50 largest was selected after examination of the returns of all financial corporations with total assets over 50 million dollars. The 50 corporations with the largest total assets (considered independently of their unconsolidated subsidiaries) which were independent, according to Moody's, and which were classified by Moody's as financials, were listed. This last requirement eliminated three companies (holding companies) classified by the Bureau of Internal Revenue as financials, but classified by Moody's in the *Utilities or Railroad Manuals*. One company included in the list actually was not independent at the end of 1933. Since the company was independent through most of the year, since the assets of its parent were too small for the parent to get on the list, and since the corporate structure of its parent was so involved that the Moody analysis in no way corresponded with the situation found by the Securities and Exchange Commission, the company was included in the list as independent.

The items tabulated for the financial corporations were selected on the basis of their importance, and are not intended to give as complete a picture as the items for the 200 nonfinancial corporations. In particular, the complete asset side of the balance sheet is not presented for the financial corporations. Life insurance companies file a special type of income-tax return, on which no item corresponding to receipts is reported, so that the receipts tabulated for the 50 largest financial corporations are not a reliable measure of the quantity of business done by them.

No attempt was made to adjust the totals for the 50 for missing subsidiaries, as all unconsolidated subsidiaries, of whatever size, had been omitted from the tabulation.

In comparing the 50 largest to all financial corporations, the balance-sheet items for all financial corporations were adjusted for corporations not submitting balance sheets, using the same procedure as was used for nonfinancials. Since none of the 50 financials were real estate corporations, it was felt that to compare them with all financials, including real estate companies, would distort the concentration ratios for certain items, particularly capital assets. However, adjustment for missing balance sheets could not be made directly for financials excluding real estate, since the Bureau of Internal Revenue did not separate returns with balance sheets from returns without balance sheets for subgroups of financial corporations. Consequently, the same adjustment factors as were used for all financials were applied to the totals for financials less real estate. The error thus introduced is insignificant.

Table X shows the totals for the 50 largest financial corporations, the totals for all financial corporations, and all financial corporations excluding real estate, with their adjustments, and the concentration ratios derived therefrom.

This part of the study is very crude, so a few words of caution are in order. The 50 largest financials exclude unconsolidated subsidiaries, so the unit of control is not the same as the unit in the nonfinancial corporation statistics. A "financial corporation" is therefore not comparable to a nonfinancial corporation in the terminology of this study.

The 50 largest financials are not to be regarded as an "equally important" or "the same" proportion of the total for all financials as the 200 nonfinancials are of the total for all nonfinancials. Fifty was merely a convenient number of financial corporations chosen to show a significant amount of concentration when compared

<sup>19</sup> While the definition included all types of insurance companies, all of these were, in fact, life insurance companies.

to all financials. Whether there is "more" concentration in financials or in nonfinancials is a question without meaning by the present definition of concentration. No cross-comparisons should be made

between the concentration ratios. The accompanying table is presented exclusively for its own intrinsic interest and is independent of the tables in part I of this appendix.

TABLE X.—*Derivation of the concentration ratios, and the totals for selected asset items and income-statement items for the 50 largest financial corporations (excluding unconsolidated subsidiaries) and all financial corporations, 1933*

	50 largest financial corporations	All financial corporations except real estate			Concentration ratio: 50 largest to all financial corporations except real estate	All financial corporations			Concentration ratio: 50 largest to all financial corporations
		Corporations submitting balance sheets <sup>1</sup>	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted		Corporations submitting balance sheets <sup>2</sup>	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
		Millions of dollars			Percent	Millions of dollars			Percent
ASSET ITEMS									
Cash <sup>3</sup> .....	3,505	9,071	807	9,878	35.5	9,252	824	10,076	34.8
Capital assets less reserve for depreciation and depletion.....	709	3,237	172	3,409	20.8	13,712	727	14,439	4.9
Tax-exempt investments <sup>4</sup> .....	4,402	10,621	212	10,833	40.6	10,751	215	10,966	40.2
Taxable investments.....	18,562	43,505	3,706	47,201	39.2	45,787	3,802	49,589	37.4
Total assets <sup>5</sup> .....	35,294	90,465	5,609	96,074	36.7	105,475	6,540	112,015	31.5
Total assets <sup>5</sup> less taxable investments.....	16,732	46,870	1,903	48,773	34.3	59,688	2,648	62,336	26.8
INCOME-STATEMENT ITEMS									
Gross receipts from sales and services <sup>6</sup> .....	78			3,171	2.5			3,337	2.3
Income tax <sup>7</sup> .....	3			28	10.7			36	8.3
Depreciation and depletion.....	32			111	28.8			293	10.9
Cash dividends paid.....	338			521	64.9			575	58.8
Compiled net profit or loss <sup>8</sup> .....	55			663	8.3			1,070	15.1

<sup>1</sup> From office work sheets of the Bureau of Internal Revenue.

<sup>2</sup> From *Statistics of Income*.

<sup>3</sup> Includes cash in till and deposits in bank.

<sup>4</sup> Includes obligations of States and Territories or minor political subdivisions, securities issued under the Federal Farm Loan Act, and obligations of the United States or its possessions.

<sup>5</sup> Reserves for depreciation and depletion are deducted from total assets as well as from capital assets.

<sup>6</sup> Gross receipts from operations when inventories are not an income-determining factor. Gross sales where inventories are an income-determining factor are not reported for financial corporations.

<sup>7</sup> Federal income tax plus excess-profits tax.

<sup>8</sup> Statutory net income or deficit, plus interest on tax-exempt investments, plus dividends from domestic corporations, which are also nontaxable income.

## APPENDIX 12.—INTERLOCKING DIRECTORATES AMONG THE LARGEST AMERICAN CORPORATIONS, 1935<sup>1</sup>

This study of interlocking directorates covers the directors of the 200 largest nonfinancial corporations and the 50 largest financial corporations in 1935. For the nonfinancial corporations, the list of 200 largest nonfinancial corporations with their assets which appears in Appendix 10 was used. The 50 largest banks and financial companies (30 banks, 20 financial companies) are listed in table I.<sup>2</sup>

The names of directors for each corporation were compiled from the lists of corporation directorates in Poor's *Register of Directors, 1936*. In some few cases, where Poor's omitted a corporation, Moody's *Manuals* were used.

A summary of the results of this study has been given in chapter IX, charts I and II. The following tables present these results in more detail.

Only 25 of the 250 corporations have no interlocks with each other. These companies are relatively small, in terms of assets, as compared with the interlocking companies. Although they constitute 10 percent of the number of companies, their assets amount to only 4 percent of the total assets of the 250 companies. The names of the 25 noninterlocking companies are given in table II. They comprise 16 industrials, 8 utilities, and 1 railroad. There are no banks and no financial companies among them. The absence of interlocking directorates between these 25 companies and others in the list of 200 largest nonfinancial and 50 largest financial corporations does not necessarily mean that these companies are free from other types of links. They include companies which are relatively free from outside control as the Crane Co., which is owned in large part by the Crane family, and companies such as Atlantic Refining and Ohio Oil which are successor firms to the old Standard Oil Co., and are members of the Rockefeller interest group.<sup>3</sup>

The 225 corporations which show interlocks with each other are classified in tables III, IV, and V, and the assets represented in each class are shown.

The interlocking directorates between specific companies have been shown in charts I and II of chapter IX. Chart I, however, shows the complete picture of interlocks only for the 100 companies with the greatest number of interlocks. The interlocks among the remaining 125 companies, which appear at the top

TABLE I.—Banks and Finance Companies included in the 250 list

BANKS	<i>Assets (millions)</i>
Chase National Bank .....	2,350.5
National City Bank .....	1,880.7
Guaranty Trust Co. ....	1,847.4
Bank of America National Trust & Savings Association .....	1,277.4
Continental Illinois National Bank & Trust Co. ....	1,141.1
Bankers Trust Co. ....	1,031.7
First National Bank (Chicago) .....	925.4
Central Hanover Bank & Trust Co. ....	914.8
First National Bank (Boston) .....	729.6
Irving Trust Co. ....	720.0
Manufacturers Trust Co. ....	673.0
Chemical Bank & Trust Co. ....	625.2
Security First National Bank .....	591.0
First National Bank (N. Y.) .....	584.2
Bank of the Manhattan Co. ....	548.3
J. P. Morgan & Co., Drexel & Co. ....	537.9
Philadelphia National Bank .....	432.8
New York Trust Co. ....	419.7
National Bank of Detroit .....	395.9
Cleveland Trust Co. ....	337.7
Mellon National Bank .....	337.6
Union Trust Co. ....	334.5
Northern Trust Co. ....	320.7
Corn Exchange Bank Trust Co. ....	317.4
American Trust Co. ....	271.8
Wells Fargo Bank & Trust Co. ....	248.6
First National Bank (St. Louis) .....	235.5
Pennsylvania Co. for Insurances, etc. ....	235.3
Anglo-California National Bank .....	214.3
Harris Trust & Savings Bank .....	207.6

### OTHER FINANCIALS

Metropolitan Life Insurance Co. ....	4,234.8
Prudential Insurance Co. ....	3,129.5
New York Life Insurance Co. ....	2,243.6
Equitable Life Insurance Society of the United States .....	1,816.2
Mutual Life Insurance Co. of New York .....	1,239.0
Northwestern Mutual Life Insurance Co. ....	1,072.0
Travelers Insurance Co. ....	787.9
John Hancock Mutual Life Insurance Co. ....	731.5
Penn Mutual Life Insurance Co. ....	600.7
Mutual Benefit Life Insurance Co. ....	586.8
Massachusetts Mutual Life Insurance Co. ....	532.2
Aetna Life Insurance Co. ....	503.5
Marine Midland Corporation .....	453.3
New England Mutual Life Insurance Co. ....	343.5
Union Central Life Insurance Co. ....	326.8
Provident Mutual Life Insurance Co. ....	298.3
Commercial Investment Trust Corporation .....	297.2
Wisconsin Bankshares Corporation .....	276.4
Connecticut Mutual Life Insurance Co. ....	268.4
Pacific Mutual Life Insurance Co. ....	215.6

<sup>1</sup> Appendix 12 was prepared by Eleanor Poland.

<sup>2</sup> Note that this list differs from that used in Appendix 13 since the latter contains the largest 50 banks and includes no other financial companies.

<sup>3</sup> See Appendix 13.

of chart I but not at the side of the chart, are listed in table VI.

Data on the men who hold these directorships are given in tables VII, VIII, and IX. Table VII gives the residence of all the 2,722 directors for whom residence information was available, with the number of directorships held by these men. Table VIII lists the 83 men who held 4 or more directorships, together with the companies in which they held directorships and other positions held by them. Table IX shows their residences to be concentrated in the financial centers.

TABLE II.—25 corporations with no interlocks inside the 250 list, analyzed by type of corporation

	Assets (millions)
<b>Industrials:</b>	
American Tobacco Co.....	264.2
Singer Manufacturing Co.....	175.8
Liggett & Myers Tobacco Co.....	170.5
Eastman Kodak Co.....	168.3
The Atlantic Refining Co.....	163.0
R. J. Reynolds Tobacco Co.....	153.9
Glen Alden Coal Co.....	151.4
Ohio Oil Co.....	139.7
Firestone Tire & Rubber Co.....	139.3
S. S. Kresge Co.....	118.5
Crane Co.....	95.2
Climax Molybdenum Co.....	79.1
Minnesota & Ontario Paper Co.....	78.2
Brown Company.....	76.4
J. C. Penney Co.....	74.4
S. H. Kress & Co.....	70.4
	<u>2,118.3</u>
<b>Utilities:</b>	
Associated Gas & Electric Properties.....	1,125.4
Utilities Power & Light Corporation.....	367.2
Midland United Co.....	320.0
Central Public Utility Corporation.....	151.6
Long Island Lighting Co.....	127.6
Portland Electric Power Co.....	95.0
Jersey Central Power & Light Co.....	80.1
Associated Telephone Utilities Co.....	79.4
	<u>2,346.3</u>
<b>Railroads:</b>	
Western Maryland Ry. Co.....	168.1
	<u>168.1</u>
<b>Grand total.....</b>	<b>4,632.7</b>

TABLE III.—Distribution of companies according to number of directors holding 2 or more directorships on the 250 list

Number of companies	Number of directors in each company who hold directorships in 2 or more of the 250 companies	Assets (millions of dollars)
33.....	1	10,253.8
22.....	2	8,729.1
18.....	3	3,554.0
28.....	4	8,137.0

TABLE III.—Distribution of companies according to number of directors holding 2 or more directorships on the 250 list—Con.

Number of companies	Number of directors in each company who hold directorships in 2 or more of the 250 companies	Assets (millions of dollars)
29.....	5	11,464.3
17.....	6	5,807.5
15.....	7	9,153.6
15.....	8	6,123.9
8.....	9	5,133.4
10.....	10	6,855.3
8.....	11	11,120.6
4.....	12	4,644.6
4.....	13	6,578.7
2.....	14	1,596.0
2.....	15	1,269.6
2.....	16	1,944.7
2.....	17	1,067.2
2.....	18	5,237.3
1.....	22	1,847.4
1.....	23	2,350.5
225.....		<u>110,281.5</u>

<sup>1</sup> Equals 96 percent of total assets of the 250 corporations.

TABLE IV.—Distribution of companies according to number of directors holding 3 or more directorships on the 250 list

Number of companies	Number of directors in each company who hold directorships in 3 or more of the 250 companies	Assets (millions of dollars)
51.....	1	17,243.8
28.....	2	10,119.9
32.....	3	12,366.5
18.....	4	5,783.2
19.....	5	10,371.8
13.....	6	14,363.0
6.....	7	4,251.8
6.....	8	5,420.8
2.....	9	2,220.5
3.....	10	4,189.5
3.....	11	1,343.3
2.....	12	1,369.3
1.....	13	2,350.5
1.....	14	1,847.4
2.....	16	5,237.3
187.....		<u>198,480.6</u>

<sup>1</sup> Equals 83.7 percent of total assets of the 250 corporations.

TABLE V.—Distribution of companies according to number of directors holding 4 or more directorships in the 250 list

Number of companies	Number of directors in each company who hold directorships in 4 or more of the 250 companies	Assets (millions of dollars)
54.....	1	17,942.1
33.....	2	12,321.6
26.....	3	15,725.5
17.....	4	12,562.0
9.....	5	7,447.5
4.....	6	4,870.7
3.....	7	8,253.3
4.....	8	6,445.9
1.....	10	1,239.0
151.....		<u>83,857.6</u>

<sup>1</sup> Equals 73 percent of the total assets of the 250 corporations.

TABLE VI.—*Interlocking directorates among 200 largest non-financial and 50 largest financial corporations not shown on Chart I of chapter IX*<sup>1</sup>

Corporation	Interlocking directorates with—
Reading Co. ....	Baltimore & Ohio R. R. Co. Pennsylvania Co. for Insurances, etc.
Virginia Ry. Co. ....	Brooklyn Union Gas Co.
Phillips Petroleum Co. ....	Manufacturers Trust Co., New York. First National Bank (St. Louis). Sears, Roebuck & Co. McKesson & Robbins, Inc. (Mary- land). Gimbel Bros., Inc. Swift & Co. Chicago, Rock Island & Pacific Ry. Co. Socoyny-Vacuum Oil Co., Inc. Travelers Insurance Co.
National Dairy Products Corporation.	Anaconda Copper Mining Co. Florida East Coast Ry. Co. American Gas & Electric Co. Shell Union Oil Corporation. Republic Steel Corporation. Atlantic Coast Line. Socoyny-Vacuum Oil Co., Inc. Cities Service Co. Phillips Petroleum Co. Union Oil Co. of California. Crown Zellerbach Corporation. Pacific Gas & Electric Co. Security First National Bank, Los Angeles. Anglo-California National Banks. Southern California Edison Co., Ltd.
Shell Union Oil Corpora- tion.	Anaconda Copper Mining Co. Interlake Iron Corporation. National Fuel Gas Co.
United Shoe Machinery Corporation.	Bethlehem Steel Corporation. Interlake Iron Corporation. American Power & Light Co. Kansas City Southern Ry. Co. National Bank of Detroit.
American Power & Light Co.	Niagara Hudson Power Corpora- tion. Standard Gas & Electric Co. Chicago, Rock Island & Pacific Ry. Co. Marine Midland Corporation.
Chicago, Rock Island & Pacific Ry. Co.	National Dairy Products Corpora- tion. R. H. Maey & Co., Inc. Gimbel Brothers, Inc. McKesson & Robbins, Inc. (Mary- land).
Manufacturers Trust Co., New York.	Commercial Investment Trust Cor- poration.
Pacific Mutual Life Insur- ance Co.	Baldwin Locomotive Works. Minneapolis & St. Louis R. R. Co. Provident Mutual Life Insurance Co.
Bethlehem Steel Corpora- tion.	
Anaconda Copper Mining Co.	
Republic Steel Corporation.	
Sears, Roebuck & Co. ....	
Loew's, Inc. ....	
Philadelphia & Reading Coal & Iron Corporation.	

<sup>1</sup> Interlocks among companies whose names do not appear at side of chart. Interlocks between these same companies and those whose names appear at side of chart are shown on the chart and are not listed here.TABLE VI.—*Interlocking directorates among 200 largest non-financial and 50 largest financial corporations not shown on Chart I of chapter IX—Continued*

Corporation	Interlocking directorates with—
Gimbel Brothers, Inc. ....	Sears, Roebuck & Co. Wisconsin Bankshares Corporation. National Dairy Products Corpora- tion.
Cities Service Co. ....	Philadelphia Rapid Transit Co. Manufacturers Trust Co., New York. Marine Midland Corporation. Natural Gas Pipeline Co. of America.
Niagara Hudson Power Corporation.	Republic Steel Corporation. St. Regis Paper Co. Marine Midland Corporation. North American Co. American Power & Light. Reading Co.
American Gas & Electric Co.	Corn Products Refining Co. Wheeling Steel Corporation. Commonwealth Southern Corpora- tion.
Baltimore & Ohio R. R. Co. Seaboard Air Line Ry. Co.	Pennsylvania Co. for Insurances, etc. Reading Co. Norfolk & Western Ry. Co. National Lead Co. Republic Steel Corporation. St. Regis Paper Co. Cities Service Co. Niagara Hudson Power Corpora- tion.
Norfolk & Western Ry. Co.	Sears, Roebuck & Co. National Dairy Products Corpora- tion.
Pennsylvania Co. for In- surances, etc.	Pacific Lighting Corporation. Philadelphia & Reading Coal & Iron Corporation. Anglo-California National Bank.
Marine Midland Corpora- tion.	Wisconsin Bankshares Corporation. Sears, Roebuck & Co. American Gas & Electric Co. Pacific Gas & Electric. Union Oil Co. of California. Pacific Lighting Corporation. Security First National Bank, (Los Angeles).
McKesson & Robbins, Inc. (Maryland).	Pacific Mutual Life Insurance Co. Youngstown Sheet & Tube Co. Alleghany Corporation. Denver & Rio Grande Western R. R. Co.
Baldwin Locomotive Works.	Alleghany Corporation. Missouri Pacific R. R. Co. Anglo-California National Bank.
Tide Water Associated Oil Co.	Standard Oil Co. of California. Crown Zellerbach Corporation. Security First National Bank, (Los Angeles).
North American Co. ....	Pacific Mutual Life Insurance Co. Tide Water Associated Oil Co. Cleveland-Cliffs Iron Co. Interlake Iron Corporation.
Southern California Edison Co., Ltd.	
Missouri Pacific R. R. Co.	
Denver & Rio Grande Western R. R. Co.	
Anglo-California National Bank.	
Cleveland Trust Co. ....	

TABLE VI.—*Interlocking directorates among 200 largest non-financial and 50 largest financial corporations not shown on Chart I of chapter IX—Continued*

Corporation	Interlocking directorates with—
First National Bank (St. Louis).	International Shoe Co. Chicago & Eastern Illinois Ry. Co. Commercial Investment Trust Corporation. Phillips Petroleum Co. St. Louis Public Service Co.
National Bank of Detroit...	Anaconda Copper Mining Co. Detroit Edison Co.
Travelers Insurance Co....	United Shoe Machinery Corporation.
United States Rubber Co...	General American Transportation Corporation.
American Rolling Mill Co...	Columbia Gas & Electric Corporation.
R. H. Macy & Co., Inc....	Sears, Roebuck & Co.
Corn Products Refining Co.	Allis Chalmers Manufacturing Co. Seaboard Air Line Ry. Co. Corn Products Refining Co. Northwestern Mutual Life Insurance Co. Wisconsin Bankshares Corporation.
Allis Chalmers Manufacturing Co.	
Interlake Iron Corporation.	Bethlehem Steel Corporation. Anaconda Copper Mining Co. Allied Chemical & Dye Corporation. Cleveland Trust Co.
Pacific Gas & Electric Co...	North American Co. Pacific Lighting Corporation. Pacific Mutual Life Insurance Co. American Trust Co.
Columbia Gas & Electric Corporation.	American Rolling Mill Co. Sun Oil Co. Lone Star Gas Corporation.
Detroit Edison Co.....	National Bank of Detroit North American Co.
Commercial Investment Trust Corporation.	Loew's, Incorporated. Community Water Service Co. First National Bank (St. Louis).
Wisconsin Bankshares Corporation.	Gimbel Bros., Inc. North American Co. Allis Chalmers Manufacturing Co. Northwestern Mutual Life Insurance Co.
Chicago & Western Indiana R. R. Co.	Chicago & Eastern Illinois Ry. Co.
Security First National Bank, Los Angeles.	Union Oil Co. of California Southern California Edison Co., Ltd. Anglo-California National Bank. Pacific Mutual Life Insurance Co. Seaboard Air Line Ry. Co.
Commonwealth Southern Corporation.	
Pacific Lighting Corporation.	McKesson & Robbins, Inc. (Md.). Pacific Gas & Electric Co. Southern California Edison Co., Ltd. American Trust Co.
Swift & Co.....	Shell Union Oil Corporation. Aetna Life Insurance Co.

TABLE VI.—*Interlocking directorates among 200 largest non-financial and 50 largest financial corporations not shown on Chart I of chapter IX—Continued*

Corporation	Interlocking directorates with—
Union Oil Co. of California	Southern California Edison Co., Ltd. Security First National Bank, Los Angeles. Pacific Mutual Life Insurance Co. Niagara Hudson Power Co. Marine Midland Corporation. Cleveland Trust Co. Wheeling Steel Corporation. Denver & Rio Grande Western R. R. Co. Missouri Pacific R. R. Co. Swift & Co. Connecticut Mutual Life Insurance Co.
St. Regis Paper Co. ....	
Cleveland-Cliffs Iron Co...	
Allegheny Corporation....	
Aetna Life Insurance Co...	
Provident Mutual Life Insurance Co.	Philadelphia & Reading Coal & Iron Corporation. Allis Chalmers Manufacturing Co. Wisconsin Bankshares Corporation. Hearst Consolidated Publications, Inc. Pacific Lighting Corporation. Pacific Gas & Electric Co. Bethlehem Steel Corporation. Chicago & Western Indiana R. R. Co. First National Bank (St. Louis). Anaconda Copper Mining Co.
Northwestern Mutual Life Insurance Co.	
American Trust Co.....	
National Fuel Gas Co. ...	
Chicago & Eastern Illinois Ry. Co.	
Kansas City Southern Ry. Co.	
National Lead Co.....	
Crown Zellerbach Corporation.	Pennsylvania Co. for Insurances, etc. Wells Fargo Bank & Union Trust Co. Anglo-California National Bank. Pacific Mutual Life Insurance Co. Manufacturers Trust Co., New York. Shell Union Oil Corporation. Commercial Investment Trust Corporation. Cities Service Co.
Socony-Vacuum Oil Co., Inc.	
Community Water Service Co.	
Philadelphia Rapid Transit Co.	
St. Louis Public Service Co.	
Natural Gas Pipeline Co. of America.	
Brooklyn Union Gas Co...	
Wheeling Steel Corporation.	
American I. G. Chemical Corporation.	
Sun Oil Co.....	
Hearst Consolidated Publications, Inc.	
Minneapolis & St. Louis R. R. Co.	
Atlantic Coast Line R. R. Co.	
Union Central Life Insurance Co.	
Connecticut Mutual Life Insurance Co.	
	Virginia Ry. Co. Seaboard Air Line Ry. Co. Cleveland-Cliffs Iron Co. Standard Oil Co. (New Jersey). Ford Motor Co. Columbia Gas & Electric Corporation. American Trust Co. Philadelphia & Reading Coal & Iron Corporation. Chicago, Rock Island & Pacific Ry. Co. Procter & Gamble Co. Aetna Life Insurance Co.

TABLE VI.—Interlocking directorates among 200 largest non-financial and 50 largest financial corporations not shown on Chart I of chapter IX—Continued

Corporation	Interlocking directorates with—
Lone Star Gas Corporation.	Columbia Gas & Electric Corporation.
Standard Gas & Electric Co.	Republic Steel Corporation.
Florida East Coast Ry. Co.	American Power & Light.
Wells Fargo Bank & Union Trust Co.	Crown Zellerbach Corporation.
General American Transportation Corporation.	United States Rubber Co.
Procter & Gamble Co.	Union Central Life Insurance Co.
International Shoe Co.	First National Bank (St. Louis).
Youngstown Sheet & Tube Co.	Missouri Pacific R. R. Co.
Allied Chemical & Dye Corporation.	Interlake Iron Corporation.
Standard Oil Co. of California.	Anglo-California National Bank.
Ford Motor Co.	American I. G. Chemical Corporation.
Standard Oil Co. (New Jersey).	American I. G. Chemical Corporation.

TABLE VII.—Residence distribution by States of 2,722 directors in 250 large corporations

State	Number of directorships held									Total for State
	1	2	3	4	5	6	7	8	9	
Alabama.....	6	1								7
Arizona.....	1									1
Arkansas.....	2									2
California.....	146	14	1		1					165
Colorado.....	2									2
Connecticut.....	71	7	3	2	1	1			1	86
Delaware.....	16	4	1							21
District of Columbia.....	6	1	1							8
Florida.....	5	1								6
Georgia.....	5									5
Idaho.....										
Illinois.....	175	32	9	5	4			1	1	227
Indiana.....	5	1								6
Iowa.....	4									4
Kansas.....	3	1								4
Kentucky.....	4									4
Louisiana.....	4	2								6
Maine.....										
Maryland.....	22	1	2	1						26
Massachusetts.....	98	18	7	1	4	1	1			130
Michigan.....	37	3								40
Minnesota.....	17	1								18
Mississippi.....	1									1
Missouri.....	55	5	1	1						62
Montana.....	3									3
Nebraska.....	5									5
Nevada.....										
New Hampshire.....	6									6
New Jersey.....	119	14	11	6	1					151
New Mexico.....										
New York.....	485	95	44	21	6	4	1	1		660
North Carolina.....	22									22
North Dakota.....										
Ohio.....	106	14	1	2						123
Oklahoma.....	6									6
Oregon.....	162	37	15	9	2			1		226
Pennsylvania.....	3	1								4
Rhode Island.....	2									2
South Carolina.....										
South Dakota.....										
Tennessee.....	6									6
Texas.....	11									11
Utah.....	1	1								2
Vermont.....	5	2								7
Virginia.....	9									9
Washington.....	3									3
West Virginia.....	13									13
Wisconsin.....	35	8	1							44
Wyoming.....	2									2
Residence unknown.....	523	38	2							563
England.....	2									2
British Columbia.....	1									1
Ontario.....	3									3
Quebec.....	5									5
Mexico.....	1									1
Total.....	2,234	363	102	48	19	6	6	3	1	2,722

TABLE VIII.—Men holding 4 or more directorships among the 250 great corporations with the names of the corporations

[I]=Industrial; (U)=Utility; (R)=Railroads; (B)=Banks; (F)=Finance Co.'s]

MEN HOLDING 9 DIRECTORSHIPS		
Names	Companies	Positions <sup>1</sup>
Dayison, G. W., Greenwich, Conn.	(I) Union Carbide & Carbon Corporation..... Chrysler Corporation..... United Fruit Co..... Crucible Steel Co..... (U) Western Union Telegraph Co..... Third Avenue Ry. Co..... (R) Wabash Ry. Co..... Virginian Ry. Co..... (B) Central Hanover Bank & Trust Co.....	Chairman of board and trustee
MEN HOLDING 8 DIRECTORSHIPS		
Avery, S. L., Chi- cago.	(I) United States Steel Corporation..... Armour & Co..... Pullman, Inc..... Montgomery, Ward & Co.....	Chairman of board, president, and director.
Mellon, R. K., Pitts- burgh.	(U) Commonwealth Edison Co..... Peoples Gas Light & Coke Co..... (R) Chicago Great Western R. R. Co..... (B) Northern Trust Co..... (I) Gulf Oil Corporation..... Koppers Co. of Delaware..... Pullman, Inc..... Aluminum Co. of America..... Pittsburgh Plate Glass Co..... (R) Pennsylvania R. R. Co..... (B) Mellon National Bank.....	President, and director.
Wiggin, A. H., New York City.	Union Trust Co..... (I) American Sugar Refining Co..... American Woolen Co..... (U) International Paper & Power Co..... Stone & Webster, Inc..... Western Union Telegraph Co..... Brooklyn-Manhattan Transit Corporation..... Hudson & Manhattan R. R. Co..... (R) New York, New Haven & Hartford R. R. Co.....	
MEN HOLDING 7 DIRECTORSHIPS		
Baker, G. F., New York City.	(I) United States Steel Corporation..... General Motors Corporation..... Pullman, Inc..... (U) American Telephone & Telegraph Co..... (R) New York Central R. R..... (B) First National Bank (N. Y.).....	Chairman of board and director.
Ecker, F. H., New York City.	(F) Mutual Life Insurance Co. of New York..... (U) Consolidated Edison of New York, Inc..... Interborough Rapid Transit Co..... Western Union Telegraph Co..... (R) Chicago, Milwaukee, St. Paul & Pacific R. R. Co..... St. Louis-San Francisco Ry. Co..... (B) Chase National Bank..... (F) Metropolitan Life Ins. Co.....	Trustee.
McLennan, D. R., Lake Forest, Ill.	(I) Armour & Co..... Pullman, Inc..... Montgomery Ward & Co..... American Sugar Refining Co..... (U) Peoples Gas Light & Coke Co..... (R) Pennsylvania R. R. Co..... (B) Continental Illinois National Bank & Trust Co.....	President and director.
Parkins, T. N., Westwood, Mass.	(I) Loew's Inc..... General Foods..... (U) American Telephone & Telegraph Co..... Stone & Webster, Inc.....	Member executive committee and director.
Reynolds, J. E., New York City	(R) Southern Pacific Co..... Boston & Maine R. R. Co..... (B) First National Bank (Boston)..... (I) American Radiator & Standard Sanitary Corporation..... National Biscuit Co..... (R) New York Central R. R. Co..... Southern Pacific Co..... Southern Ry. Co.....	Do.

<sup>1</sup> Director unless otherwise indicated.



TABLE VIII.—Men holding 4 or more directorships among the 250 great corporations with the names of the corporations—Continued

## MEN HOLDING 7 DIRECTORSHIPS—Continued

Names	Companies	Positions
Reynolds, J. E., New York City— Continued	(B) First National Bank (New York). (F) Prudential Insurance Co. of America.	President and director.
Whitney, George, Westbury, N. Y.	(I) General Motors Corporation. Kenecott Copper Corporation. Pullman, Inc. Continental Oil Co. (C) Consolidated Edison of New York, Inc. (B) Guaranty Trust Co. J. P. Morgan Co.	Trustee. Partner.

## MEN HOLDING 6 DIRECTORSHIPS

Adams, C. F., Boston.	(I) General Electric Co. United States Smelting, Refining & Mining Co. (U) American Telephone & Telegraph Co. Edison Electric Illuminating Co. (R) New York, New Haven & Hartford R. R. Co. (F) John Hancock Mutual Life Insurance Co. (I) American Can Co. Phillips Petroleum Co. (U) American Telephone & Telegraph Co. (R) Great Northern Ry. Co.	Member executive committee and director. President, member executive committee and finance committee and director. Member advisory and executive committees and trustee.
Loomis, E. E., New York City.	Lehigh Valley R. R. Co. (B) New York Trust Co.	President, member executive committee and director.
Potter, W. C., New York City.	(I) Continental Oil Co. (U) Electric Power & Light Corporation. National Power & Light Co. (R) Atchison, Topeka & Santa Fe Ry. Co. (B) Guaranty Trust Co. (F) Mutual Life Insurance Co. of New York. (I) U. S. Steel Corporation.	Chairman of board and director. Trustee. Chairman of board, chief executive officer and director. Member executive committee and director.
Taylor, M. C., New York City.	(U) American Telephone & Telegraph Co. (R) New York Central R. R. Co. Atchison, Topeka & Santa Fe Ry. Co. (B) First National Bank (N. Y.). (F) Mutual Life Insurance Co. of New York.	Do. Do. Member, finance committee and trustee.
Weinberg, S. J., Scarsdale, N. Y.	(I) Sears, Roebuck & Co. National Dairy Products Corporation. B. F. Goodrich Co. Continental Can Co. McKesson & Robbins, Inc. General Foods Corporation. General Electric Co. American Radiator & Standard Sanitary Co.	Member, executive committee and director. Do. Do. Chairman of board, president and director.
Woolley, C. M., Greenwich, Conn.	(I) Atchison, Topeka & Santa Fe Ry. Co. Delaware, Lackawanna & Western R. R. Co. (F) Mutual Life Insurance Co. of New York.	Member board of managers. Trustee.

## MEN HOLDING 5 DIRECTORSHIPS

Buckner, M. N., Fishers Island, N. Y.	(U) Interborough Rapid Transit Co. Consolidated Gas, Electric Light & Power Co. of Baltimore. (R) Chicago, Milwaukee, St. Paul & Pacific R. R. Co. (B) New York Trust Co. (F) New York Life Insurance Co.	Chairman of board and trustee.
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TABLE VIII.—Men holding 4 or more directorships among the 250 great corporations with the names of the corporations—Continued

## MEN HOLDING 5 DIRECTORSHIPS—Continued

Names	Companies	Positions
Carlton, Newcomb, New York City.	(I) American Sugar Refining Co. (U) Western Union Telegraph Co.	Chairman of board and director.
County, A. J., St. Davids, Pa.	(R) Union Pacific R. R. Co. (B) Chase National Bank (F) Metropolitan Life Insurance Co. (I) Pennsylvania R. R. Co. Norfolk & Western Ry. Co. Chicago Union Station Co. (B) Chemical Bank & Trust Co. Philadelphia National Bank.	
Crawford, D. A., Golf, Ill.	(I) Armour & Co. Pullman, Inc.	President and director.
Gray, W. S., Jr., Greenwich, Conn.	(B) Montgomery Ward & Co., Inc. Continental Illinois National Bank & Trust Co. Harris Trust & Savings Bank (I) Texas Corporation. Union Carbide & Carbon Corporation. Paramount Pictures, Inc. General Foods Corporation (B) Central Hanover Bank & Trust Co. (I) Shell Union Oil Corporation.	President and trustee. Member executive committee and director. Chairman finance committee and director. Member executive committee and director.
Hayden, Charles, New York City.	Kenecott Copper Corporation. American Woolen Co. (U) Brooklyn Manhattan Transit Corporation.	Member executive committee and director.
Herrick, R. F., Boston, Mass.	(K) Chicago, Rock Island & Pacific Ry. Co. (I) United Fruit Co. United Shoe Machinery Corporation. U. S. Smelting, Refining & Mining Co. (U) Edison Electric Illuminating Co. of Boston. (B) First National Bank (Boston). (I) U. S. Steel Corporation (R) Atchison, Topeka & Santa Fe Ry. Co. Northern Pacific Ry. Co. (B) Guaranty Trust Co. J. P. Morgan Co., Drexel & Co. (I) National Dairy Products Corporation.	Chairman of board, chairman finance committee, and director. Member executive committee and director. Do. Do. Do. Do. Partner. President, member executive committee and director.
Prasser, Seward, Englewood, N. J.	B. F. Goodrich Co. Gibbel Brothers, Inc. (U) American Waterworks & Electric Co. (R) Lehigh Valley R. R. Co. (I) General Motors Corporation.	Member finance committee and director. Member executive committee and director.
Robinson, H. M., Pasadena, Calif.	Kenecott Copper Corporation. (B) Bankers Trust Co. (F) Equitable Life Assurance Society. (I) General Electric Co. Union Oil Co. of California (U) Southern California Edison Co., Ltd. (B) Security-First National Bank (F) Pacific Mutual Life Insurance Co.	Chairman management committee, member executive committee, and director. Vice chairman executive committee and director. Member executive committee and director.
Simpson, James, Chicago, Ill.	(I) Marshall Field & Co. (U) Commonwealth Edison Co. Peoples Gas Light & Coke Co. Public Service Co. of Northern Illinois. (R) New York Central R. R. Co.	Chairman of board and director. Do. Do.

TABLE VIII.—Men holding 4 or more directorships among the 250 great corporations with the names of the corporations—Continued

## MEN HOLDING 5 DIRECTORSHIPS—Continued

Names	Companies	Positions
Sprague, A. A., Chicago, Ill.	(I) International Harvester Co. ....	Member finance committee and director.
	(R) B. F. Goodrich Co. ....	
	(R) Wilson & Co., Inc. ....	
Stockton, Philip, Boston.	(R) Chicago & Northwestern Ry. Co. ....	President and director.
	(B) Continental Illinois National Bank & Trust Co. ....	
	(I) General Electric Co. ....	
	(R) American Sugar Refining Co. ....	
	(U) American Telephone & Telegraph Co. ....	
Sunny, B. E., Chicago, Ill.	(B) First National Bank (Boston) ....	Member executive committee and director.
	(F) New England Mutual Life Insurance Co. ....	
	(I) General Electric Co. ....	
Vanderbilt, Cornelius, New York City.	Wilson & Co., Inc. ....	Chairman of board and director.
	(U) Public Service Co. of Northern Illinois. ....	
	(R) Chicago Great Western Railroad Co. ....	
	(B) First National Bank (Chicago) ....	
	(R) Illinois Central R. R. Co. ....	
	(B) Delaware & Hudson Co. ....	
Wadsworth, Eliot, Boston, Mass.	(B) Chase National Bank. ....	Trustee.
	(B) Central Hanover Bank & Trust Co. ....	
	(F) Mutual Life Insurance Co. of New York. ....	
	(I) United Shoe Machinery Corporation. ....	
	United States Smelting, Refining & Mining Co. ....	
Warriner, S. D., Philadelphia, Pa.	(U) Stone & Webster, Inc. ....	President, board of managers and directors.
	(F) John Hancock Mutual Life Insurance Co. ....	
	(I) Lehigh Coal & Navigation Co. ....	
Wing, D. G., Brookline, Mass.	(U) National Power & Light Co. ....	Member executive committee and director.
	(B) Philadelphia National Bank. ....	
	(B) Pennsylvania Co. for Insurance. ....	
	(F) Pennsylvania Mutual Life Insurance Co. ....	
	(I) United Fruit Co. ....	
	United Shoe Machinery Corporation. ....	
	United States Smelting, Refining & Mining Co. ....	Trustee.
	(B) First National Bank (Boston) ....	
	(F) Travelers Insurance Co. ....	

## MEN HOLDING 4 DIRECTORSHIPS

Anderson, A. M., New York City.	(U) International Telephone & Telegraph Corporation. ....	Partner.
	(R) Northern Pacific Ry. Co. ....	
	(B) J. P. Morgan Co., Drexel & Co., New York Trust Co. ....	
Astor, Vincent, New York City.	(U) Western Union Telegraph Co. ....	Trustee.
	(R) Great Northern Ry. Co. ....	
	(I) Illinois Central R. R. Co. ....	
Baker, N. D., Shaker Heights, Ohio.	(R) Chase National Bank. ....	Trustee.
	(I) Goodyear Tire & Rubber Co. ....	
	(B) Radio Corporation of America. ....	
Brown, Donaldson, Irvington-on-Hudson, N. Y.	(I) Cleveland Trust Co. ....	Chairman, finance committee, vice president and director.
	(F) Mutual Life Insurance Co. of New York. ....	
	(I) General Motors Corporation. ....	
Brownell, F. H., Greenwich, Conn.	E. I. du Pont de Nemours & Co. ....	Chairman of board, chairman finance committee and director.
	(R) St. Louis-San Francisco Ry. Co. ....	
	(B) National Bank of Detroit. ....	
Carlisle, F. L., New York City.	(I) American Smelting & Refining Co. ....	Chairman of board and director.
	(R) American Sugar Refining Co. ....	
	(R) Northern Pacific Ry. Co. ....	
	(B) Chase National Bank. ....	Trustee.
	(I) St. Regis Paper Co. ....	
	(U) Consolidated Edison of New York, Inc. ....	
	Niagara Hudson Power Corporation. ....	Chairman of board and director.
	(F) Marine Midland Corporation. ....	

TABLE VIII.—Men holding 4 or more directorships among the 250 great corporations with the names of the corporations—Continued

## MEN HOLDING 4 DIRECTORSHIPS—Continued

Clement, M. W., Philadelphia.	(U) Western Union Telegraph Co. ....	Vice president in charge of operation and director.
	(R) Pennsylvania R. R. Co. ....	
Clothier, M. L., Villanova, Pa.	Norfolk & Western Ry. Co. ....	President and director.
	Chicago Union Station Co. ....	
	(U) United Gas Improvement Co. ....	
Colt, S. S., Tuxedo Park, N. Y.	(U) Lehigh Valley R. R. Co. ....	Trustee.
	(B) Philadelphia National Bank. ....	
	(F) Pennsylvania Mutual Life Insurance Co. ....	
Cummings, W. J., Chicago.	(I) General Foods Corporation. ....	Chairman of board and director.
	(U) Commonwealth & Southern Corporation. ....	
	(B) Bankers Trust Co. ....	
Cutler, Bertram, Greco Village, N. J.	(F) Mutual Life Insurance Co. of New York. ....	Trustee.
	(I) Texas Corporation. ....	
	(U) American Car & Foundry Co. ....	
Davis, A. V., Pittsburgh, Pa.	(U) Commonwealth Edison Co. ....	Chairman of board and director.
	(B) Continental Illinois National Bank & Trust Co. ....	
	(I) Radio Corporation of America. ....	
Day, J. P., New York City.	(R) New York Central R. R. Co. ....	Chairman of board and director.
	(F) Chase National Bank. ....	
	(F) Equitable Life Assurance Society of U. S. ....	
De Forest, H. W., New York City.	(I) Aluminum Co. of America. ....	Trustee.
	(U) Niagara Hudson Power Co. ....	
	(B) Mellon National Bank. ....	
D'Olier, Franklin, Morristown, N. J.	(U) Union Trust Co. ....	Member executive committee and director.
	(I) Union Carbide & Carbon Corporation. ....	
	R. H. Macy & Co. ....	
Goelt, R. W., New York City.	(U) Consolidated Edison of New York, Inc. ....	Member executive committee, finance officer, and director.
	(F) Metropolitan Life Insurance Co. ....	
	(I) Tidewater Associated Oil Co. ....	
Greene, E. B., Cleveland, Ohio.	(U) Western Union Telegraph Co. ....	Chairman executive committee and director.
	(R) Southern Pacific Co. ....	
	(B) Guaranty Trust Co. ....	
Groesbeck, C. E., New York City.	(B) Guaranty Trust Co. ....	Member executive committee and director.
	(I) National Biscuit Co. ....	
	(R) Pennsylvania R. R. Co. ....	
Harbord, J. G. ....	(B) Chase National Bank. ....	Chairman of board and director.
	(F) Prudential Insurance Co. of America. ....	
	(R) Union Pacific R. R. Co. ....	
Harriman, W. A., Harriman, N. Y.	(I) Illinois Central R. R. Co. ....	Member executive committee and director.
	(B) Guaranty Trust Co. ....	
	(F) Chemical Bank & Trust Co. ....	
Hartford, J. A., Valhalla, N. Y.	(I) Goodyear Tire & Rubber Co. ....	Do.
	Cleveland Cliffs Iron Co. ....	
	(R) New York Central R. R. Co. ....	
	(B) Cleveland Trust Co. ....	Chairman executive committee and director.
	(U) American Power & Light Co. ....	
	(I) Electric Power & Light Corporation. ....	
	National Power & Light Co. ....	Do.
	American Gas & Electric Co. ....	
	(I) Radio Corporation of America. ....	
	(R) Aetna, Topeka & Santa Fe Ry. Co. ....	Chairman of board and director.
	(B) Bankers Trust Co. ....	
	(F) New York Life Insurance Co. ....	
	(U) Western Union Telegraph Co. ....	Member executive committee and director.
	(R) Union Pacific R. R. Co. ....	
	(I) Illinois Central R. R. Co. ....	
	(B) Guaranty Trust Co. ....	Do.
	(I) Chrysler Corporation. ....	
	(I) Great A. & P. Tea Co. of America. ....	
	(R) New York, New Haven & Hartford R. R. Co. ....	President and director.
	(B) Guaranty Trust Co. ....	

TABLE VIII.—Men holding 4 or more directorships among the 250 great corporations with the names of the corporations—Continued

MEN HOLDING 4 DIRECTORSHIPS—Continued

Names	Companies	Positions
Houston, D. F., New York City.	(D) U. S. Steel Corporation. (C) American Telephone & Telegraph Co. (B) Guaranty Trust Co. (F) Mutual Life Insurance Co. of New York.	President and trustee.
James, A. C., New York City.	(I) Phelps Dodge Corporation. (R) Great Northern Ry. (B) Western Pacific R. R. Corporation.	Chairman of board and director.
Johnston, P. H., Montclair, N. J.	(B) First National Bank (New York) (I) Paramount Pictures, Inc.	Member executive committee and director.
	(C) Hudson & Manhattan R. R. Co. (B) Chemical Bank & Trust Co.	Chairman of board and director.
Kirby, F. M., Wilkesbarre, Pa.	(F) New York Life Insurance Co. (I) F. W. Woolworth Co.	Vice president and director.
	(C) United Gas Improvement Co. (R) Lehigh Valley R. R. Co.	Member executive committee and director.
Loasby, A. W., Montclair, N. J.	(F) Metropolitan Life Insurance Co. (C) Interborough Rapid Transit Co. (R) Denver & Rio Grande Western R. R. Co.	
McCain, C. S., Chi- cago.	(B) Chemical Bank & Trust Co. (I) B. F. Goodrich Co. (C) Corn Products Refining Co. (U) United Light & Power Co.	President and director.
McCulloch, C. A., Chicago.	(R) Seaboard Air Line Ry. Co. (I) Texas Corporation. (B) Paramount Pictures, Inc. (R) Chicago Great Western R. R. Co. (B) First National Bank (Chicago)	
Melton, Paul, Pitts- burgh, Pa.	(I) Gulf Oil Corporation of Pennsylvania. (I) Pittsburgh Coal Co. (B) Mellon National Bank	
Mellon, W. L., Pittsburgh, Pa.	(I) Gulf Oil Corporation of Pennsylvania. (B) Westinghouse Electric & Manufacturing Co. (B) Mellon National Bank. (I) Union Trust Co.	Chairman of board and director.
Moore, Paul, Con- vent, N. J.	(I) American Can Co. (R) National Biscuit Co. (I) Delaware, Lackawanna & Western R. R. Co.	
Murphy, G. M. P., New York City.	(B) Bankers Trust Co. (I) Bethlehem Steel Corporation. (I) Anaconda Copper Mining Co. (I) Goodyear Tire & Rubber Co. (I) Interlake Iron Corporation.	
Perkins, J. H., Greenwich, Conn.	(C) Consolidated Edison of New York, Inc. (R) Union Pacific R. R. Co. (B) National City Bank	Trustee.
Pitcairn, N. B., Clayton, Mo.	(F) Mutual Life Insurance Co. of New York. (R) Wahash Ry. Co.	Chairman of board and director.
	(I) Lehigh Valley R. R. Co.	Trustee.
	(I) Chicago & Western Indiana R. R. Co. (I) Terminal R. R. Association of St. Louis	Member executive committee and director.
Renny, G. A., Chi- cago.	(I) International Harvester Co. (C) Commonwealth Edison Co. (I) Peoples Gas Light & Coke Co. (B) First National Bank (Chicago)	Do. Vice chairman of board and director. Member executive committee and director.

TABLE VIII.—Men holding 4 or more directorships among the 250 great corporations with the names of the corporations—Continued

MEN HOLDING 4 DIRECTORSHIPS—Continued

Names	Companies	Positions
Richards, J. L., Newtonville, Mass.	(I) American Sugar Refining Co. (C) Consolidated Gas Electric Light & Power Co. of Baltimore. (B) Boston Elevated Ry. Co. (R) New York, New Haven & Hartford R. R. Co.	Member executive committee and director. Do. Do.
Robinson, W. C., Sewickley, Pa.	(I) Jones & Laughlin Steel Corporation. (C) American Waterworks & Electric Co. (B) Mellon National Bank (I) Union Trust Co.	Member board of managers.
Sawyer, P. B., Beth- lehem, Pa.	(I) Lehigh Coal & Navigation Co.	
	(C) American Power & Light Co. (I) Electric Power & Light Corporation. (I) National Power & Light Co. (I) General Motors Corporation.	
Shoen, A. P., Jr., Long Island, N. Y.	(I) E. I. du Pont de Nemours & Co., Pullman, Inc. (B) National Bank of Detroit	President and director.
Sloan, M. S., Brook- lyn, N. Y.	(I) Continental Can Co. (R) Terminal R. R. Association of St. Louis. (I) Missouri-Kansas-Texas R. R. Co.	President, chairman of board, and director.
Tidd, G. N., New York City.	(B) Irving Trust Co. (C) American Power & Light Co. (I) National Power & Light Co. (I) American Gas & Electric Co.	President and director.
Tilley, A. A., Plain- field, N. J., and New York City.	(B) Irving Trust Co. (C) Electric Power & Light Corporation. (I) National Power & Light Co. (I) American Gas & Electric Co.	Chairman of board and director.
Tomlinson, R. E., Montclair, N. J.	(I) American Can Co. (I) National Biscuit Co.	President and director.
	(R) Delaware, Lackawanna & Western R. R. Co. (F) Prudential Insurance Co. of America.	
Tracy, E. B., New York City.	(C) American Power & Light Co. (I) Electric Power & Light Corporation. (I) National Power & Light Co. (I) American Gas & Electric Co.	
Vanderbilt, H. S., New York City.	(I) Pullman, Inc. (I) New York Central R. R. Co. (I) Chicago & North Western Ry. Co. (B) First National Bank (New York City).	
Wayne, Joseph, Jr., Philadelphia.	(I) Philadelphia & Reading Coal & Iron Corporation. (I) Pennsylvania R. R. Co. (B) Philadelphia National Bank.	President and director.
	(F) Provident Mutual Life Insurance Co. (C) American Telephone & Telegraph Co.	
Willard, Daniel, Baltimore.	(I) Baltimore & Ohio R. R. Co. (I) Reading Co.	Do. Chairman of board and director.
	(F) Mutual Life Insurance Co. of New York. (I) International Harvester Co.	Trustee.
Wilson, J. P., Chi- cago.	(I) Marshall Field & Co. (B) First National Bank (Chicago) (I) Harris Trust & Savings Bank	Member executive committee and director.

TABLE IX.—Residence of directors with four or more directorships

New York and environs.....	48	Wilkes-Barre, Pa.....	1
Chicago and environs.....	11	Bethlehem, Pa.....	1
Boston and environs.....	7	Baltimore, Md.....	1
Philadelphia and environs.....	5	Pasadena, Calif.....	1
Pittsburgh and environs.....	5		
Cleveland and environs.....	2	Total.....	83
St. Louis and environs.....	1		

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## APPENDIX 13.—INTEREST GROUPINGS IN THE AMERICAN ECONOMY<sup>1</sup>

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It is the purpose of this study to throw light on the degree to which the large corporations are linked among themselves through common control, community of interest groups, or more or less loose alliances.

It is of the very nature of the relationships which form the subject matter of this study that they are overwhelmingly qualitative in character. No statistical technique has been or is likely to be devised for reducing them to a quantitative scale. Furthermore informed observers will inevitably differ in their judgments about the weight to be attached to the various bits of evidence out of which a general picture must be pieced together. For this reason it is necessary to be as careful as possible in indicating the method of analysis which has been followed. Clearly no claim to unbiased accuracy can be set forth in a study of this sort; that fact alone puts the author under an obligation to present his material in a way to make critical appraisal possible and easy.

The kind of relationships which we are studying clearly have to do with the way in which corporations are managed and this in turn depends upon how and by whom they are controlled. How they are controlled may or may not be determined by their ownership. Consequently *control* is the central issue around which the study must turn.

Now it is a fairly simple task to classify corporations by the techniques employed in controlling them. The classification used by Berle and Means,<sup>2</sup> while not exhaustive, is an excellent working scheme. They distinguish five major types, each one pretty much self-explanatory: (1) control through almost complete ownership, (2) majority control, (3) control through a legal device without majority ownership, (4) minority control, and (5) management control. It is one thing, however, to be able to place a corporation in one or other of these categories and quite another to be able to identify and name the controlling individual or group. To a certain extent, to be sure, the two problems overlap. It is quite likely that if enough is known to place a corporation in one of the first four categories, enough will also be known to identify, at least in a general way, the controlling interest. This is not necessarily true, however, and in the case of the 5th category, it is likely not to be true. Since Berle and Means estimated that somewhere around one-half of the 200 largest nonfinancial corporations in 1929 were manage-

ment-controlled, the importance of this reservation will be at once apparent.

Once a corporation has been classified by type of control, however, it is usually possible to go further and make a more or less accurate judgment about who controls it. The most important aid is undoubtedly a knowledge of the history<sup>3</sup> of the corporation and of the individuals who comprise its management (officers and directors).<sup>4</sup>

Once the identity of controlling interests has been established it is possible to begin grouping companies together. This is, however, the most difficult task of all. Some corporations clearly belong together. For example, if one individual or well-defined group of individuals owns a majority of the voting securities of two or more concerns, then it will scarcely be denied that these companies should be placed together in what we may call a single interest group. We can safely say the same about any number of corporations which are completely under the control of the same interests, whatever the form of that control may be. But the concept of an interest group should surely comprise more than merely such corporations as are altogether under the same control. For example, if two brothers or close friends each own a business, and if at many points the policies of the two businesses are made in common, it would seem desirable to group the one with the other as belonging to the same interest group. Or if an investment banker promotes and takes a continuing and significant interest in several different concerns, it would appear that good grounds exist for putting these concerns into a single interest group. Most likely in the latter case the investment banker will be part of the management in each, sharing the control with others. We could generalize, then, and say that companies ought to be grouped together if, in the absence of counter-balancing factors, they have a significant element of control in common.

Does this mean that any two companies whose directorates interlock should be classed together in one interest group? The answer to this question is em-

<sup>3</sup> The history of every corporation has certain critical phases: organization and promotion, expansion, and possibly bankruptcy and reorganization. The role which certain individuals or groups play during these periods commonly determines their importance in more normal times. It is for this reason that it is so important to have a knowledge of historical facts.

<sup>4</sup> In this connection, undoubtedly, the most valuable source of information is the magazine *Fortune*, which combines a high regard for accuracy with a special interest in personalities. On the other hand, there is very little to be found in the professional writings of economists and economic historians except in a few cases where the subject matter is specifically biographical.

<sup>1</sup> Appendix 13, was prepared by Paul M. Sweezy.

<sup>2</sup> Berle, A. A., Jr. and Means, G. C., *The Modern Corporation and Private Property*, 1933, ch. V.

phatically, "No." Anyone starting out on this principle would have little difficulty in putting all but a few of the 200 largest non-financial corporations into a single interest group.<sup>5</sup> This fact is not without significance, but the classification achieved by this method would cover up the kind of grouping it is desired to disclose. For present purposes, material on interlocking directorates is unquestionably important, but it must be used with care and discrimination.<sup>6</sup> Some general rules can be laid down, but in no case are they a complete substitute for knowledge of the relationships on which interlocking directorates are based. Interlocks may be classed as primary and secondary. A primary interlock exists between companies X and Y if a director of X, *whose main business interest is with X*, sits on the board of Y. If this same person also sits on the board of Z, then a primary interlock also exists between X and Z. These two relations, however, necessarily involve an interlock between Y and Z, and this we call a secondary interlock. It goes without saying that more weight should be given to primary than to secondary interlocks and that the latter should be interpreted only with caution.

More important in evaluating the significance of interlocking directorates is a knowledge of the general policies of the companies and individuals involved. Some firms and individuals regard the position of directorship as one of responsibility which involves their own reputations. They are not likely to assume such a responsibility unless they are in harmony with the general policy of the management of the company concerned and in a position to make their influence felt. This is clearly the case with the firm of J. P. Morgan & Co., for example. As a rule, a Morgan partner sits on the boards of only two or three large companies, frequently in related lines of activity. He is supposed to keep himself thoroughly informed and to take an active part in the affairs of these companies. When one considers the tremendous prestige which attaches to the Morgan name, it is easy to understand that the directorship of a Morgan partner is a fact of first importance in determining the orientation of a corporation. On the other hand, some individuals are perfectly willing to act as directors in a purely ornamental capacity, a function which in England is peculiarly reserved for members of the nobility. Directors, with no active business interests and no apparent asset except a name with prestige value,

should always be regarded in this light unless there is specific evidence to the contrary.

It is obvious that multiple interlocks should be given more weight than single interlocks. In this connection, it is noteworthy that about half of the large companies in which J. P. Morgan & Co. is represented have two or more Morgan partners on their boards.

There are industrial and financial alliances which manifest themselves in other ways than through complete or partial common control. Most important are alliances based on banking and underwriting relations which do not result in formal interlocks. The connection between financier and manufacturer is generally not a casual one but a continuing one which gives rise to an active interest on the side of each party in the affairs of the other. Nevertheless, relations may remain entirely informal. For example, it was the general policy of Kuhn, Loeb & Co., under the leadership of Jacob Schiff, to eschew formal representation on the boards of its clients. Yet their responsibility for success was no less keenly felt. "Once a commitment had been made," Schiff's biographer comments, "the important task was to guide the borrower's financial projects in such a way as to promote their success. This essential service was not one which was legally due anyone concerned; yet it had to be rendered for the ultimate welfare of all. One way in which bankers can watch the interests of investors who look to them for guidance is to be represented in the management or board of directors of the concern for which they have issued loans. So far as Schiff was concerned he preferred, as a rule, that his firm should not be so represented. He felt that by personal conference and advice he could do as much as through formal representation."<sup>7</sup> When relations are of the kind preferred by Schiff, they can only be recognized and evaluated by knowledge of the history of the companies involved.

Some alliances are of a kind which does not permit of generalization. Such, for example, is the close connection which has long existed between J. P. Morgan & Co. and the First National Bank of New York. It began as a personal relationship between the elder J. P. Morgan and the elder George F. Baker, but long since took on an institutional character. Outwardly this alliance manifests itself in close cooperation between representatives of the two concerns in the affairs of various third companies. Appointment to a partnership in J. P. Morgan & Co. is regarded as the most desirable form of promotion by junior officers of First National. Before the Banking Act of 1933 two Morgan partners were on the directorate of First National's

<sup>5</sup> See Appendix 12.

<sup>6</sup> Cf. the statement made in a recent government investigation of railroads: "In investigations of control it has generally been the custom to lean rather heavily on interlocking directorates as a line of evidence. The present study prompts the view that such evidence can easily be overworked unless it is very exhaustively examined." *Regulation of Stock Ownership in Railroads*, 71st Cong., 3d sess., II, R. No. 2789, pt. 1, p. LXXVI. This report will hereafter be referred to as *Splawn Report: Railroads*.

<sup>7</sup> Adler, C. S., *Jacob H. Schiff: His Life and Letters*, 2 vols., 1928, vol. I, p. 27.

securities affiliate, the First Security Co., since dissolved. It would be misleading to call the Morgan-First National alliance unique, but it is certain that it would be difficult to fit into any general category. The list of such connections which defy generalization would be a long one; probably many exist which have altogether escaped the attention of the present writer. The best that can be done is to note them down and incorporate them in the general picture as they are discovered and checked.

From what has been said the reader will gather that the method followed in this study is thoroughly empirical and involves at every stage an exercise of practical judgment. An interest group is not a clear-cut concept which can be given concrete content according to mechanical rules. Accordingly the writer makes no claim to either completeness or finality. What follows should be regarded as tentative and subject to revision at many points if and when more adequate evidence is brought to bear on the problem. Only one general rule has been observed throughout and that is to disregard connections which are not based on pretty direct relations between two parties concerned.

There are, of course, no *a priori* limits to the scope which might be determined upon for this study. Ideally it should perhaps cover all significant interest groups judged by their relation to the economy as a whole. But such an ambitious project would take years to carry through, and the results would be difficult to present in a concise and readily intelligible form. Consequently, more or less arbitrary limits had to be imposed, firstly, on the segment of the economy considered; and, secondly, on the number of groups analyzed.

As to the first limit, the starting point was the list of the 200 largest nonfinancial corporations as of the end of 1935, presented and discussed in Appendix 10 above. The list had to be used before it had assumed final form so that there may be minor discrepancies between figures used in this section and those appearing in the final version of the list. The 200 largest nonfinancial corporations, for the purposes of this paper, then, include 107 industrials, 54 public utilities, and 39 railroads. It is inconvenient to handle the railroads as 43 separate companies since many of them are grouped together through minority stockholdings into large systems. In accordance with the procedure of the Splawn report on railroads, the bulk of the mileage has been grouped together into 13 major systems.<sup>8</sup> This, of course, involves the inclusion of a number of smaller roads (not

in the Appendix 10 list) which belong to one or other of the major systems. The net result is that discussion is limited to 13 major systems and 8 other roads with assets of \$100 million or over.<sup>9</sup>

In addition to nonfinancial companies, it is necessary to consider at least banking companies in order to get a satisfactory view of the scope of important interest groups. This has been accomplished by including in the companies to be analyzed the 50 largest commercial banks as of the end of 1935.<sup>10</sup>

The total assets of the companies considered are set out in the following table:

<i>Total assets at the end of 1935</i>		<i>Millions of dollars</i>
107 industrials.....	24,943	
54 utilities.....	25,428	
13 major railroad systems and 8 other roads with assets in excess of 100 million dollars.....	24,258	
50 banks.....	23,722	

It is possible to give a fairly accurate idea of the proportion of the total *corporate* assets of each class owned by the companies included in this table. According to figures presented in Appendix 11, at the end of 1933 the 104 largest corporations classified as "Manufacturing," "Mining and Quarrying," "Trade," and "Other," possessed 33.8 percent of the total corporate assets in these categories. The list is not quite the same as that for 1935, but the difference is of small order of magnitude. These classifications correspond to what have been summed up here under the heading "Industrials."

The 1933 figures indicate that the 96 largest corporations engaged in "Transportation and Other Public Utilities" owned 87.4 percent of all corporate assets in these fields. No precise breakdown between railroads and public utilities is available, but it is likely that the figure for rails should be somewhat higher and for utilities somewhat lower than 87.4 percent in their respective fields. In the case of rails, data compiled from the *Splawn Report: Railroads* show that the 13 major systems and 8 other roads included in the above table, owned at the end of 1929 about 95 percent of total railroad mileage. Assets figures would doubtless be roughly in proportion. Taking 95 percent as the correct figure for rails would mean, of course, that 75 percent would be about right for utilities.

In the case of banks it is possible to give a figure which is very nearly accurate. The 50 largest banks held, on December 31, 1936, deposits which amounted

<sup>8</sup> *Splawn Report: Railroads*, part I, p. LII. The report names 14 major systems, but suggests (p. LI) that "the assignment of the Illinois Central to the Union Pacific system would perhaps be justified by reason of the fact that the latter owns by far the largest block of Illinois Central stock, representing 28.94 percent of the total." This assignment has been made here, and, consequently, the number of systems is reduced to 13.

<sup>9</sup> There has been very little change in the composition of the major systems since the Splawn report. Nevertheless, in order to make the data as recent as possible, the grouping has been carried out in accordance with a chart compiled and published by Robert A. Burrows (Pittsburgh) entitled *Inter-Relation and Capitalization of the Principal American Railroads—As of January 1, 1935*. This chart is believed to be accurate and to embody all developments up to the time of its publication. In compiling asset figures for the systems, the assets of roads in which two systems have an equal interest have been divided between the two.

<sup>10</sup> "Largest" by total resources as reported in Moody's *Banks* for 1936.

to 47.9 percent of the average deposits of all commercial banks for 1936.<sup>11</sup> Assets figures would certainly not differ materially.

Summing up then, it may be estimated that the corporations included in this study own about 34 percent of the assets of all industrial corporations, 48 percent of the assets of all commercial banks, 75 percent of the assets of all public utilities, and 95 percent of the assets of all rails. It would probably not be denied that this sector of the economy is the seat of economic power out of proportion to its relative size.

The other limitation mentioned above, namely, the number of interest groups, has been more or less naturally dictated by the material itself.

From a careful company-by-company study there gradually emerged eight more or less clearly defined groups which so far overshadowed all the others that it seemed only logical to confine further attention to these eight.

It is manifestly impossible to rank these groups either by size or by influence. The interests of no two are equally divided among the different spheres of economic activity considered, nor are they at all strictly comparable from the point of view of the strength of the ties which bind them together. This point is important to emphasize. It if is kept in mind there is little danger of interpreting figures, despite their misleading appearance of precision, as more than general indicators of orders of magnitude.

The groups which will be considered may be designated for convenience as follows: (1) Morgan-First National, (2) Rockefeller, (3) Kuhn, Loeb, (4) Mellon, (5) Chicago, (6) DuPont, (7) Cleveland, and (8) Boston. The reasons for these particular labels should become clear in the course of the further discussion.

1. *Morgan-First National*.<sup>12</sup>—This group is for the most part based upon partial control by one or the other or more commonly both of the financial institutions after which the group is named. This partial control in turn is based upon long-standing financial relations and the very great prestige attaching to the Morgan and First National firms. Neither of these banking houses, however, operates through ownership to any significant extent. Some of the relationships which entitle corporations to membership in this group are more com-

plex than ordinary partial control and require separate explanation.

The industrials included are 13 in number, listed with the number of Morgan-First National representatives in their management:<sup>13</sup>

Pullman, Inc. (6).

General Electric Co. (4).

United States Steel Corporation. (3).

Kemecott Copper Corporation. (3).

Phelps Dodge Corporation (2).

American Radiator & Standard Sanitary Corporation (2).

Continental Oil Co. (2)

Montgomery Ward & Co., Inc. (1).

National Biscuit Co. (1).

Philadelphia & Reading Coal and Iron Corporation (1).

Baldwin Locomotive Works (1).

Glen Alden Coal Co.

St. Regis Paper Co.

The last two named are special cases. Glen Alden owns and operates the coal properties which once belonged to the Delaware, Lackawanna and Western Railroad.<sup>14</sup> The ownership of the two are probably substantially identical, and we know that the D. L. & W. belongs to the extent of about 22 percent to the Bakers, the Vanderbilts, and the New York Central.<sup>15</sup> Two representatives of the First National are directors of Glen Alden's subsidiary, Delaware, Lackawanna & Western Coal Co., which handles sales. St. Regis can be more advantageously discussed under utilities.

There is good reason to believe that all the companies which are listed as having Morgan-First National representation on their managements have more than merely formal relations with the two financial institutions. To review all the evidence would carry us much too far afield into the sphere of economic history. The list errs if at all, in the writer's opinion, on the side of understatement. These 13 industrials have combined assets of 3,920 million dollars.

The utilities included in the group are as follows:

American Telephone & Telegraph Co.

International Telephone & Telegraph Co.

Consolidated Gas Co. of New York.<sup>16</sup>

United Corporation group:

Commonwealth & Southern Corporation.

United Gas Improvement Co.

Public Service Corporation of New Jersey.

Niagara Hudson Power Corporation.

Columbia Gas & Electric Corporation.

<sup>11</sup> Data on the 50 largest are taken from the *American Banker*, January 19 1937, p. 11; and for all commercial banks from the *Annual Report of the Federal Deposit Insurance Corporation for the Year Ending December 31, 1936*, p. 125.

<sup>12</sup> The banking act of 1933 enforced the divorce of deposit banking from underwriting. J. P. Morgan & Co. elected to continue in business as a deposit bank, and a new firm, Morgan Stanley & Co., Inc., was formed by a number of the partners of J. P. Morgan & Co. and Drexel & Co. (the Philadelphia branch of J. P. Morgan & Co.), to take over the investment banking business. Though J. P. Morgan & Co. and Morgan Stanley & Co., Inc., are, of course, legally entirely separate entities, they have nevertheless been treated as one for purposes of this analysis.

<sup>13</sup> This refers, as throughout this study, to the end of 1935.

<sup>14</sup> Moody's *Industrials*, 1935, p. 1276. The railroads were obliged under the anti-trust laws to divest themselves of coal properties.

<sup>15</sup> *Splawn Report: Railroads*, part I, pp. 134-5.

<sup>16</sup> Now Consolidated Edison Co. of New York.

Electric Bond and Share Group;<sup>17</sup>  
 American Power & Light Co.  
 American Gas & Electric Co.  
 National Power & Light Co.  
 Electric Power & Light Corporation.

American Telephone & Telegraph has three directors in common with First National, but its informal relations with J. P. Morgan & Co. are probably even more important.<sup>18</sup> Two Morgan partners are on the directorate of International Telephone & Telegraph.

The next group of companies, with which Consolidated Gas may well be considered, heads up into a superholding company called the United Corporation. United was formed in 1929 by J. P. Morgan & Co. and Bonbright & Co., acting in closest harmony.<sup>19</sup> Its avowed purpose was to foster "closer relations among the great public utility systems in the east."<sup>20</sup> The first set of directors of United comprised five partners of a leading New York law firm and soon after its formation, "these directors resigned to make way for Messrs. Whitney and Gates of J. P. Morgan & Co. and Messrs. Thorne and Loomis of Bonbright & Co., Inc."<sup>21</sup> There is not the slightest doubt that these two companies were in sole control of later operations. The steps subsequently taken and the interrelations among companies in the United Corporation group are much too complicated to detail. In spite of the fact that stockholders in Consolidated Gas are insignificant, nevertheless this company is very closely tied in with the rest of the group, particularly through the fact that one man, Floyd Carlisle, is chairman of the boards of Consolidated Gas, Niagara Hudson, and St. Regis Paper Co. This, plus substantial stockholdings, also explains the inclusion of St. Regis Paper in the group.<sup>21a</sup>

The inclusion of the Electric Bond & Share System rests on less secure foundations than in the case of the United Corporation System. Nevertheless it is believed that the supporting evidence is amply convincing. Electric Bond & Share Co. was originally formed by General Electric Co. as a subsidiary to take over securities acquired by the latter in exchange for generating machinery and equipment.<sup>22</sup> Though Gen-

eral Electric divested itself of legal control in 1925, there was no change in management and there is no reason to suppose that the two concerns do not continue to cooperate as before. General Electric, it will be recalled, is one of the industrial corporations closest to the Morgan and First National banking houses. Furthermore Electric Bond & Share has had in the past, and may still have, relatively small minority holdings in stocks of United Corporation, American Superpower Corp., Commonwealth & Southern, Public Service of New Jersey, and Niagara & Hudson.<sup>23</sup> "From the point of view of legal control," according to Bonbright and Means, "these stock interests of the Electric Bond & Share Co. in the United Corporation System are probably negligible. They become significant, however, by virtue of the fact that Electric Bond & Share Co. has long been closely affiliated with the banking house of Bonbright & Co., Inc.,<sup>24</sup> and they point strongly to the conclusion that the policies of the Electric Bond & Share Co. and of the interests controlling the United Corporation will be harmonious rather than antagonistic."<sup>25</sup> Nothing has happened since this was written to change this judgment.

The 12 utility companies included in the Morgan-First National group have combined assets of 12,191 million dollars.<sup>26</sup>

The assignment of railroad systems to the Morgan-First National group has been done sparingly. Only five major systems and one other road are included in the list, though an excellent case could be made out for according similar treatment to two more major systems and at least two other smaller roads. Those included are as follows:

New York Central System.<sup>27</sup>  
 Alleghany System.<sup>28</sup>  
 Northern System.<sup>29</sup>  
 Atchison System.<sup>30</sup>  
 Southern System.<sup>31</sup>  
 Western Pacific.<sup>32</sup>

Morgan and/or First National representatives partake in the managements of all the major systems listed, except Alleghany, and of Western Pacific. Financial

<sup>17</sup> American & Foreign Power has been omitted from this study because all of its properties are held abroad.

<sup>18</sup> The development of these relations has been traced in detail by the Federal Communications Commission in its investigation of the Bell System. See Federal Communications Commission, *Special Investigation Docket No. 1*, "American Telephone and Telegraph Company—Corporate and financial history", 3 Vols., Reports No. 22, 23, and 24.

<sup>19</sup> For the story of the formation and development of United Corporation see "High Finance in the 'Twenties: the United Corporation," *Columbia Law Review*, May 1936, June 1936.

<sup>20</sup> *Columbia Law Review*, June 1936, p. 936.

<sup>21</sup> *Ibid.*, May 1936, p. 787.

<sup>21a</sup> For interrelations within the United Corporation and Electric Bond and Share Group, see *Interrelation and Capitalization of the Principal Public Utility, Holding, Operating and Investment Companies*, as of January 1, 1936. Compiled and published by R. A. Buntons, Pittsburgh.

<sup>22</sup> *Relation of Holding Companies to Operating Companies in Power and Gas Affecting Control*, 73rd Cong., 2d Sess., H. R. No. 827, part 3, pp. 437 and ff. This report will henceforth be referred to as *Splawn Report: Utilities*.

<sup>23</sup> Bonbright, J. C. and Means, G. C., *The Holding Company*, 1932, p. 133.

<sup>24</sup> Up to 1935, Sidney A. Mitchell, president of Bonbright & Co., was a director of Electric Bond & Share and three of its major subsidiaries.

<sup>25</sup> Bonbright and Means, *loc. cit.*

<sup>26</sup> The assets of United Corporation, American Superpower, Electric Bond & Share, and American & Foreign Power are not included in this total.

<sup>27</sup> Includes New York Central; Delaware, Lackawanna & Western; and a one-half interest in Rutland.

<sup>28</sup> Includes Chesapeake & Ohio; Missouri Pacific; Erie; New York, Chicago & St. Louis; Pere Marquette; Chicago & Eastern Illinois; Wheeling & Lake Erie; and a one-half interest in Denver & Rio Grande Western.

<sup>29</sup> Includes Great Northern; Northern Pacific; Chicago, Burlington & Quincy; Spokane, Portland & Seattle; and Gulf, Mobile & Northern.

<sup>30</sup> Includes only Atchison, Topeka & Santa Fe.

<sup>31</sup> Includes Southern; and a one-half interest in Chicago, Indianapolis & Louisville.

<sup>32</sup> Includes Western Pacific; and a one-half interest in Denver & Rio Grande Western.



relations have been in every case close and of long duration.<sup>33</sup>

Alleghany is a special case. This giant railroad system was built up, through the lavish use of holding companies, by the late Van Sweringen brothers of Cleveland. Almost from the inception of their career in the railroad field, the Van Sweringens relied heavily on both J. P. Morgan & Co. and the First National for advice and financial support. It is reasonably certain that without that assistance the Van Sweringens never would have built a railroad empire, nor would they have been able to remain in control once it was built.<sup>34</sup>

Since the last of the Van Sweringen brothers died in November 1936, a struggle for control of the profitable parts of the empire has developed between Robert R. Young and The Guaranty Trust Company which is closely allied to the Morgan house. It is still too early to predict the outcome of this contest, but there is a possibility that the bankers will lose out. Since this study, however, relates to the end of 1935, it is clearly correct to classify the Alleghany system in the Morgan-First National interest group.

The combined assets of the listed railroads amount to 9,678 million dollars.

In the banking field only three banks beside J. P. Morgan & Co. and the First National have been admitted to the list, though this decision was not taken until several further promising candidates had been rejected. The banks are as follows:

Guaranty Trust Co.

Bankers Trust Co.

New York Trust Co.

In the case of the first, three Morgan partners are directors and in the case of the others, two each. The combined assets of the five banks amount to 4,421 million dollars.

To sum up: the Morgan-First National group includes 13 industrial corporations, 12 utility corporations, 5 major railroad systems and one other road, and 5 banks. Total asset figures are as follows:

	Millions of dollars
Industrials.....	3, 920
Utilities.....	12, 191
Rails.....	9, 678
Banks.....	4, 421
Total.....	30, 210

(2) *Rockefeller*.—The Rockefeller group has been limited to companies about which there can be very little argument. It extends only into industrials and

banks and comprises all told only seven corporations.

In the industrial field, the Rockefeller interests hold what amounts to a controlling minority position in six large oil companies, successor firms to the old Standard Oil Company, which was dissolved by court decree in 1911. These companies, together with the percentage of voting power held by John D. Rockefeller and/or Rockefeller-endowed institutions, are as follows:<sup>35</sup>

Name of company:	Percent voting power
Standard Oil Co. of New Jersey.....	16. 5
Socony Vacuum Oil Co., Inc.....	20. 8
Standard Oil Co. of Indiana.....	13. 8
Standard Oil Co. of California.....	16. 6
Atlantic Refining Co.....	7. 1
Ohio Oil Co.....	24. 0

These six companies have more than half the total assets of the oil industry. Rockefeller control is mostly exercised in a negative fashion, but is none the less real on that account. This was illustrated dramatically in 1929 when the management of Standard of Indiana, under the leadership of Robert W. Stewart, challenged the Rockefeller dominance and was decisively routed in a battle of proxies.<sup>36</sup> It will be noticed that the Rockefeller interest is smaller in Standard of Indiana than in any of the other companies except Atlantic Refining.

The total assets of the Rockefeller oil companies amount to 4,262 million dollars.

One bank, the Chase National, has been assigned to the Rockefeller group. John D. Rockefeller is probably the bank's largest stockholder, and Winthrop Aldrich, its chairman, is a long-time Rockefeller legal and business representative.<sup>37</sup> Chase National is the country's largest bank, with assets of 2,351 million dollars.

(3) *Kuhn, Loeb*.—The main activity of the investment banking house of Kuhn, Loeb & Co. has, at least until quite recently, always centered in the field of railroads. In financing, reorganizing, rehabilitating and advising railroads, Kuhn, Loeb has since the 1890's been the peer of J. P. Morgan & Co. As previously noted, it has never been the policy of Kuhn, Loeb to maintain more than a few of its contacts by means of directorships, but the reality of the community of interest between the firm and its clients is certainly not open to question on that account.<sup>38</sup> Only

<sup>33</sup> As reported in *Report on Pipe Lines*, 72d Cong., 2d sess., H. R. No. 2192, pt. 1, p. xxxvi.

<sup>34</sup> The incident and its implications have been discussed at length by Berle and Means, *The Modern Corporation*, pp. 82-84.

<sup>35</sup> "Chase National Bank," *Fortune*, Jan. 1936. No study of stock ownership in banks, such as the House Committee on Interstate and Foreign Commerce has carried out for rails, utilities, and communications, has ever been made. It would be very desirable that this should be done.

<sup>36</sup> The peculiarly intimate connection which exists between a railroad and its banker is very clearly set forth and vigorously defended in a statement prepared by Kuhn, Loeb & Co. for the Interstate Commerce Commission in 1922, and reprinted under the title "The marketing of American railroad securities" in *Sale of Foreign Bonds or Securities in the United States*, hearings before the Committee on Finance, U. S. Senate, 72d Cong., 1st sess., pt. 2, pp. 305-322.

<sup>37</sup> See for example Corey, Lewis, *The House of Morgan*, 1930, especially pts IV, V, and VII; Daggett, Stuart, *Railroad Reorganization*, 1908, passim.

<sup>38</sup> For the story of the Van Sweringens' career see the following: *Stock Exchange Practices*, hearings before the Committee on Banking and Currency, U. S. Senate, 73d Cong. 1st Sess. on S. Res. 84 (73d Cong.) . . . and S. Res. 56 (73d Cong.), Pt. 2; *Investigation of Railroads, Holding Companies and Affiliated Companies*, hearings before a Subcommittee of the Committee on Interstate Commerce, U. S. Senate, 74th Cong., 2d Sess. pursuant to S. Res. 71, Pts. 1, 2, 3, 4, 7, 10; also *Splawn Report: Railroads*, Pt. 2.

those contacts which have been very close and of long duration have been admitted as evidence of membership in the Kuhn, Loeb interest group. Besides railroads, of which five major systems and two other roads are included, only one utility and one bank are on the list. These are as follows:

Major railroad systems:

Pennsylvania.<sup>39</sup>  
 Union Pacific.<sup>40</sup>  
 Southern Pacific.<sup>41</sup>  
 Chicago, Milwaukee, St. Paul & Pacific.<sup>42</sup>  
 Chicago & Northwestern.<sup>43</sup>

Other roads with assets over 100 million dollars:

Missouri-Kansas-Texas.<sup>44</sup>  
 Delaware & Hudson.<sup>45</sup>

Utilities:

Western Union Telegraph Co.<sup>46</sup>

Banks:

Bank of the Manhattan Co.<sup>47</sup>

It is quite likely that Kuhn, Loeb exercises less in the way of active control than J. P. Morgan & Co., and for that reason the group at present under consideration should be considered as less closely knit and more in the nature of a loose alliance.

Asset figures for the Kuhn, Loeb group are as follows:

	<i>Millions of dollars</i>
Industrials.....	
Utilities.....	342
Rails.....	9,963
Banks.....	548
Total.....	10,853

(4) *Mellon*.—The Mellon group is probably the best integrated and most compact of all the interest groups considered. It is based on a solid core of industrials and banks which are closely held by members of the Mellon family and a small number of close associates. Aside from companies of this description, two other types have been included, namely: (1) Those on the management of which three or more members of the Mellon group are active and probably dominant, and (2) those allied to the closely held Mellon companies by significant primary interlocks, and in the affairs of which no other group is represented. On this basis the Mellon list is as follows:

<sup>39</sup> Includes Pennsylvania; Norfolk & Western; Wabash; Lehigh Valley; New York, New Haven & Hartford; Detroit, Toledo & Ironton; Boston & Maine; and a half interest in Rutland. For relations with Kuhn, Loeb, cf. Adler, *Jacob H. Schiff*, vol. I, especially pp. 71-82.

<sup>40</sup> Includes Union Pacific and Illinois Central. *Ibid.*, pp. 88-123, 131-144.

<sup>41</sup> *Ibid.*, pp. 117-121.

<sup>42</sup> *Ibid.*, pp. 150-151.

<sup>43</sup> *Ibid.*, pp. 50-51.

<sup>44</sup> *Ibid.*, p. 131.

<sup>45</sup> *Ibid.*, pp. 148-150.

<sup>46</sup> *Ibid.*, pp. 171-172.

<sup>47</sup> Cf. "Mr. Kuhn and Mr. Loeb," *Fortune*, March 1930. This article also has additional information on relations with railroads.

Industrials:

Closely held:

Gulf Oil Corporation.  
 Koppers Co.<sup>48</sup>  
 Aluminum Co. of America  
 Pittsburgh Coal Co.

Probably Mellon dominated:

Westinghouse Electric & Manufacturing Co.

Allied:

Jones & Laughlin Steel Corporation  
 American Rolling Mill Co.  
 Crucible Steel Co. of America  
 Pittsburgh Plate Glass Co.

Rails:

Virginian Ry. Co.<sup>49</sup>

Utilities:

United Light & Power Co.<sup>49</sup>  
 Brooklyn Union Gas Co.<sup>49</sup>

Banks (closely held):

Mellon National Bank.  
 Union Trust Co.

Total assets of the Mellon group are as follows:

	<i>Millions of dollars</i>
Industrials.....	1,648
Utilities.....	859
Rails.....	153
Banks.....	672
Total.....	3,332

(5) *Chicago*.—The Chicago group has been defined solely on the basis of interlocking directorates. Of 11 companies designated as belonging to this group, all with headquarters in Chicago, 1 interlocks with the other 10, 1 with 9, 1 with 8, 2 with 7, 3 with 6, 1 with 5, and 1 with 4. In every case at least one of the interlocks is double and several are triple. It is scarcely to be questioned that such a welter of interlocks signifies a substantial community of interest between the firms involved. The following are the 11 companies:

Industrials:

International Harvester Co.  
 Armour & Co.  
 Marshall Field & Co.  
 Wilson & Co.

Utilities:

Commonwealth Edison Co.  
 Public Service Corporation of Northern Illinois.  
 Peoples Gas, Light & Coke Co.

<sup>48</sup> In computing Mellon asset figures, the assets of Koppers have been divided as accurately as possible between industrials and utilities.

<sup>49</sup> The Mellon interests have, through Koppers and directly, by far the largest stockholdings in these companies. On Virginian, see the report in the *New York Times*, August 10, 1937, of hearings before the Senate Committee on Railroad Finance; and on the other two the Security and Exchange Commission's *Official Summary of Holdings of Officers, Directors and Principal Stockholders*, as of December 31, 1935.

## Banks:

Continental Illinois National Bank & Trust Co.  
 First National Bank of Chicago.  
 Northern Trust Co.  
 Harris Trust & Savings Bank.

The connections between these companies are portrayed graphically in chart II of chapter IX. Their assets are as follows:

	<i>Millions of dollars</i>
Industrials.....	858
Utilities.....	813
Rails.....	.....
Banks.....	2, 595
Total.....	4, 266

(6) *Du Pont*.—The Du Pont group comprises only four companies, three industrial and one bank, but they are all in the top rank with respect to size. Like the Rockefellers, the Du Ponts exercise control through substantial minority stockholdings. Theirs is a compact, closely knit group. The key company is E. I. du Pont de Nemours, which the Du Ponts control through a family holding company, the Christiana Securities Co. The latter owns about 25 percent of the voting stock of E. I. du Pont de Nemours.<sup>50</sup> E. I. du Pont de Nemours in turn owns approximately the same proportionate interest in General Motors Corporation.<sup>51</sup> Du Ponts and Du Pont representatives dominate the management of both companies. The third industrial in this group is United States Rubber Co., in which another Du Pont family holding company, called Rubber Securities Co., owns about 20 percent voting power.<sup>52</sup> F. B. Davis, Jr., a Du Pont executive, was installed as president soon after the Du Ponts bought into United States Rubber. The Du Pont bank is the National Bank of Detroit, on the board of which sit five General Motors officials.

Assets of the Du Pont group are as follows:

	<i>Millions of dollars</i>
Industrials.....	2, 232
Utilities.....	.....
Rails.....	.....
Banks.....	396
Total.....	2, 628

(7) *Cleveland*.—The Cleveland group centers around the Mather interests in Cleveland. The corporations involved are as follows:

## Industrials:

Cleveland-Cliffs Iron Co.  
 Republic Steel Corporation.  
 Youngstown Sheet & Tube Co.

## Industrials—Continued.

Inland Steel Co.  
 Wheeling Steel Corporation.  
 Goodyear Tire & Rubber Co.  
 Interlake Iron Corporation.

## Banks:

Cleveland Trust Co.

The interrelation of these companies, so far as stock ownership is concerned, is as follows: The Mather interests control the Cleveland-Cliffs Iron Co. by means of 100 percent of the voting common stock held through the Cliffs Corporation plus a substantial share of the voting preferred stock held directly. The Cleveland-Cliffs Co. has minority voting interests in the four steel companies. Relations are by no means confined to stock ownership, but so complicated is the whole picture that it defies brief and simple exposition. We shall have to be content with stating a few additional facts. The key company in the iron and steel group, Cleveland-Cliffs Iron Co., owns, next to United States Steel, the largest supply of unworked iron ore in the country.<sup>53</sup> The alliance between Cleveland-Cliffs and four of the so-called steel independents, Republic, Youngstown Sheet & Tube, Inland and Wheeling, is consequently seen to have a solid and durable economic foundation. These companies do not have any elements of management in common because a large number of interlocks were successfully attacked under the antitrust laws in 1935 and had to be abandoned.<sup>54</sup> There is no reason, however, to suppose that this altered their relations to one another except in a purely formal way. The Cleveland Trust Co. interlocks with Cleveland-Cliffs and Republic Steel in addition to the following smaller Mather interest concerns: Interlake Iron (twice), Interlake Steamship, and the Samuel Mather Estate, Inc. Goodyear Tire & Rubber belongs to the Cleveland group by virtue of its having two directors in common with Cleveland Trust and two others with Cleveland-Cliffs.<sup>55</sup>

Total asset figures for the Cleveland group are as follows:

	<i>Millions of dollars</i>
Industrials.....	1, 066
Utilities.....	.....
Rails.....	.....
Banks.....	338
Total.....	1, 404

<sup>50</sup> "Iron and Steel," *Fortune*, May 1931.

<sup>51</sup> *Equity No. 5153*, District Court of the U. S., Northern District of Ohio, U. S. A. petitioner v. William G. Mather et al., defendants. Petition, filed February 7, 1931. For the final disposition of the case, whereby the defendants voluntarily agreed to give up their interlocking directorships, see press release of the Department of Justice, February 11, 1936.

<sup>52</sup> Cyrus S. Eaton, of Cleveland, who joined with the Mathers in forming the Cliffs Corporation just before the depression set in, was at one time in control of Goodyear. He lost control during the depression and for a time a number of banks, of which Cleveland Trust was one, were large stockholders. The story is told in detail by H. and R. Wolf in their book *Rubber*, 1936, book V, ch. 111.

<sup>53</sup> Prospectus of the E. I. du Pont de Nemours Co., dated June 30, 1937.

<sup>54</sup> *Ibid.*

<sup>55</sup> Securities and Exchange Commission, *op. cit.*

(8) *Boston*.—The Boston group heads up into the First National Bank of Boston and the Old Colony Trust Co.<sup>56</sup> Chart II of chapter IX<sup>57</sup> shows the very great extent to which the First National-Old Colony banking interests interlock with the other companies which have been assigned to this group, and they with each other. Most of the relations have roots reaching back 30 or more years, and there is little doubt of the reality of the community of interest which is symbolized in these interlocking directorates. The companies included follow:

**Industrials:**

United Shoe Machinery Corporation.  
U. S. Smelting, Refining & Mining Co.  
United Fruit Corporation.<sup>58</sup>  
American Woolen Co.

**Utilities:**

Stone & Webster, Inc.  
Edison Electric Illuminating Co. of Boston.

**Banks:**

First National Bank (including Old Colony Trust).

Total asset figures are:

	Millions of dollars
Industrials.....	425
Utilities.....	554
Rails.....	
Banks.....	740
Total.....	1,719

Eight interest groups have been sketchily outlined insofar as they cover a sector of the economy which includes corporations with total assets of very nearly 100 billion dollars, fairly evenly distributed between industrials, rails, utilities and banks.

What percentages of these totals fall into the various groups and into all the groups together? This question is answered in the following table:

*Percentages of assets considered which fall into the various interest groups<sup>1</sup>*

	Morgan-First National	Rockefeller	Kuhn, Loeb	Mellon	Du Pont	Chicago	Cleveland	Boston	Total
Industrials.....	15.7	17.1	0	6.6	8.9	3.4	4.3	1.7	57.7
Rails.....	39.9	0	41.1	.6	0	0	0	0	81.6
Banks.....	18.6	9.9	2.3	2.8	1.7	10.9	1.4	3.1	50.7
Utilities.....	47.9	0	1.3	3.4	0	3.2	0	2.2	58.0

<sup>1</sup> This is the percent of total assets in the interest groups to the total assets in each of the four industrial groups in the 250 large corporations. See p. 305.

<sup>56</sup> These two banks merged their interests in 1929. Old Colony is now in effect the trust department of First National. See any of Moody's bank manuals for 1930 or after for details.

<sup>57</sup> See p. 162.

<sup>58</sup> Some question might be raised about the inclusion of United Fruit since there is no doubt that active control is in the hands of its managing director, Samuel Zemurray, of New Orleans. See "United Fruit," *Fortune*, March 1933. The fact that Zemurray retains the old directorate unchanged, however, would seem to indicate that he has reached a friendly understanding with the Boston group.

The reader should be cautioned against reading into this table implications which are not there. It does not relate to the whole economy but only to that segment which is roughly coterminous with the area controlled by the 200 largest nonfinancial corporations, and the 50 largest banks. It is possible to argue that the influence of this segment is far greater than any statistical measure would indicate, but, of course, such an argument must rest on grounds different from any presented in this study. Secondly, it is not intended to imply that these aggregations of capital ever act as a unit under the rule of individual or oligarchic dictatorships. The social and economic content of the relationships which bind them together is far more subtle and varied than this. This study should be regarded as doing no more than posing the problem of the larger significance of the facts which it seeks to portray.

The method of procedure followed up to this point tends to give the impression that each of the groups considered is more or less isolated and unrelated to the others except, of course, by way of normal commercial transactions. This is very far from the actual state of things. Some idea of the way they overlap and interconnect is conveyed by the following list, very incomplete though it is, of contacts.

(1) *Between Morgan-First National and Mellon*.—Six representatives of Morgan-First National and three of Mellon are on the board of Pullman, Inc. This relationship resulted from the merger in 1930 of Pullman and Standard Steel Car, previously one of the closely held Mellon industrials. Texas Gulf Sulphur Co., which with the Freeport Sulphur Co., has a practical monopoly of the country's sulphur output, has two Morgan partners on its board, while Mellon's Gulf Oil Corporation owns one-third of its capital stock.

(2) *Between Morgan-First National and Chicago*.—Three prominent members of the Chicago group are on the directorates of Pullman, Inc., and Montgomery Ward & Co., Inc., both of which have been assigned to the Morgan-First National group.

(3) *Between Morgan-First National and Du Pont*.—Three high representatives of Morgan-First National are directors of General Motors, controlled through minority ownership by the Du Ponts. Additionally, the Morgan firms are chief bankers and underwriters for the Du Pont interests.

(4) *Between Morgan-First National and Boston*.—At least three men who rate as members of the Boston group are directors of General Electric, and five are directors of American Telephone & Telegraph. These two corporations are among those which have had longest and closest relations with both Morgan and the First National of New York.

(5) *Between Morgan-First National and Cleveland*.—The Cleveland group is represented on the directorates

of Alleghany Corporation and several of its subsidiaries. Alleghany has been assigned to the Morgan, First National group. Furthermore, three men are directors of both Alleghany and Goodyear Tire and Rubber.

(6) *Between Kuhn, Loeb and Cleveland.*—The records of the Securities and Exchange Commission indicate that at least since the beginning of 1935, Kuhn, Loeb has been the leading underwriter for the four steel companies in the Cleveland group, namely, Republic, Youngstown Sheet & Tube, Inland, and Wheeling.<sup>59</sup>

(7) *Between Kuhn, Loeb and Du Pont.*—One of the few large companies in which Kuhn, Loeb partners hold directorships is United States Rubber, and in this case two Kuhn, Loeb partners are directors. United States Rubber is controlled by minority ownership by the Du Ponts.

(8) *Between Du Pont and Rockefeller.*—The Du Ponts' General Motors and Rockefeller's Standard Oil of New Jersey own on a half-and-half basis the Ethyl Gasoline Corporation. The latter exercises a virtual police power over the terms and conditions of sale of 85 percent of the gasoline with high octane rating sold in the country.<sup>60</sup> This amounts to about 70 percent of all gasoline sold.

(9) *Between Rockefeller and Boston.*—One of the difficult problems which had to be decided in making up the various interest groups was whether the giant International Paper & Power Co. should be assigned to Boston or Rockefeller. Boston is particularly closely associated with its power subsidiary, New England Power Association, which holds well over half the total assets of International Paper & Power. For example, F. D. Comerford is at one and the same time a director of the First National Bank of Boston, chairman of New England Power Association, and president of Edison Electric Illuminating Co. of Boston. The latter has five directors in common with the First National and/or the Old Colony. On the other hand Chase National Bank now holds 16.6 percent of the voting power in International Paper & Power,<sup>61</sup> a holding exceeded only by that of the Phipps family. Furthermore, Chase and International Paper & Power have two directors in common.

The dilemma created by this situation was solved by assigning International Paper & Power to neither the Boston nor the Rockefeller groups.<sup>62</sup> That it provides a strong link between them, however, is evident.

(10) *Between Boston and Mellon.*—Gas in Boston is provided by Koppers' subsidiary Eastern Gas & Fuel Associates. Halfdan Lee, president of Eastern Gas & Fuel, is a director of First National Bank of Boston. Three prominent members of the Boston group are on the board of trustees of Eastern Gas & Fuel.

(11) *Between Mellon and Kuhn, Loeb.*—Westinghouse Electric & Manufacturing, certainly under Mellon influence and probably under Mellon control, has had long and close relations with Kuhn, Loeb.<sup>63</sup> The late Jerome Hanauer, former Kuhn, Loeb partner, was a director of Westinghouse until his death.

Before leaving the subject of the interrelation of the various groups, it is well to note the role played in particular by the American Telephone & Telegraph Co. The American Telephone & Telegraph Co. covers the greater part of the country with its score or more associated companies. Each of these subsidiaries has a complete corporate structure with a board of directors and banking relations at least partially unconnected with those of the parent company. It has been a deliberate policy of the Bell System to foster relations with the important industrial and financial groups in all the large centers where it does business.<sup>64</sup> The result is that every one of the groups which have been analyzed interlocks in greater or lesser degree with one or more of the Bell System companies, and probably most of the large banks have financial relations with the local Bell company. It is of course difficult to gauge the importance of connections of this sort, but the extent to which they have been developed leads to the belief that they are by no means insignificant. It is probably true that relations like those just described are of more importance and interest insofar as they form a bond between the major groups and apparently independent corporations both large and small. It is obvious, however, that the discussion of the implications of the Bell System and kindred organizations cannot be a part of this study.<sup>65</sup>

The material here presented raises questions to which no answer can here be attempted. What is the significance of the existence of more or less closely integrated interest groups for the pricing process? What are its implications for the relation between economic and political activity? How and to what extent do the views of leaders in the economic sphere make themselves felt in the life of the community?

These questions, and many more, are raised with an urgency proportionate to the degree of concentra-

<sup>59</sup> Also for the two of the other large steel independents, Bethlehem and National.

<sup>60</sup> The facts came to light in an antitrust suit initiated by the Department of Justice early in 1937; *Equity* No. E. 84-521, District Court of the U. S., Southern District of New York; *U. S. A., petition v. Ethyl Gasoline Corporation, Earle C. Webb, and John Coard Taylor, defendants; petition*, filed February 19, 1937.

<sup>61</sup> As of May 1937. S. E. C. File 33-22.

<sup>62</sup> Alternatively, the assets of International Paper & Power might be considered as evenly divided between Chase and Boston, thus raising the asset figures for Boston utilities from \$354 to \$942 millions. In assigning the other 50 percent of assets, it seems desirable to add them to Chase rather than directly to the Rockefeller total. This raises the Rockefeller bank total to \$2,739 millions but adds nothing to utilities.

<sup>63</sup> See above, p. 312.

<sup>64</sup> A similar policy is adopted by other large companies which have subsidiaries scattered over the country. The American Telephone & Telegraph is simply the best-developed case.

<sup>65</sup> Ample raw material for a thorough analysis of this problem exists in the study of the Federal Communications Commission already cited. See particularly the volumes entitled "Outside Contacts of the Bell System" and "Banking Relations of the Bell System."

tion of economic leadership in the hands of a few. The present study will perhaps have helped to demonstrate that they have now attained the status of central issues.

TABLE 1.—*Companies among the 200 largest nonfinancials and the 50 largest banks which do not fall into the 8 interest groupings<sup>1</sup>*

[Asset figures obtained from Moody's. In millions of dollars]	
INDUSTRIALS	
Ford Motor Co.....	681.6
Bethlehem Steel Corporation.....	673.1
Anaconda Copper Mining Co.....	581.5
The Texas Corporation.....	473.8
Shell Union Oil Corporation.....	358.1
Consolidated Oil Corporation.....	331.1
Swift & Co.....	321.4
Union Carbide & Carbon Corporation.....	271.1
The American Tobacco Co.....	264.2
Allied Chemical & Dye Corporation.....	252.5
Sears, Roebuck & Co.....	234.0
American Can Co.....	209.1
Chrysler Corporation.....	193.5
F. W. Woolworth Co.....	192.3
National Dairy Products Corporation.....	192.0
Great Atlantic & Pacific Tea Co. of America.....	189.2
Tide Water Associated Oil Co.....	182.8
National Steel Corporation.....	180.5
Singer Manufacturing Co.....	175.8
Phillips Petroleum Co.....	174.5
American Smelting & Refining Co.....	171.7
Liggett & Myers Tobacco Co.....	170.5
Warner Bros. Pictures, Inc.....	168.5
Eastman Kodak Co.....	168.3
The Pure Oil Co.....	157.2
R. J. Reynolds Tobacco Co.....	153.9
Union Oil Co. of California.....	151.7
The Firestone Tire & Rubber Co.....	139.3
Loew's, Inc.....	128.6
Hearst Consolidated Publications, Inc.....	128.6
The Proctor & Gamble Co.....	127.1
The B. F. Goodrich Co.....	124.0
The Borden Co.....	120.1
Paramount Pictures, Inc.....	118.9
Corn Products Refining Co.....	118.7
S. S. Kresge Co.....	118.5
The American Sugar Refining Co.....	117.7
Sun Oil Co.....	107.1
National Lead Co.....	104.0
Radio Corporation of America.....	102.5
Crown Zellerbach Corporation.....	101.3
General American Transportation Corporation.....	96.3
Crane Co.....	95.2
Continental Can Co., Inc.....	94.6
American Car & Foundry Co.....	91.2
R. H. Macy Co., Inc.....	90.5
International Shoe Co.....	83.2
The Lehigh Coal & Navigation Co.....	82.0
Gimbel Bros., Inc.....	79.9
Deere & Co.....	79.7
Climax Molybdenum Co.....	79.1
Minnesota & Ontario Paper Co.....	78.2
The Cudahy Packing Co.....	76.4
Brown Co.....	76.4

<sup>1</sup> These companies and their asset figures are taken from the list of 200 largest non-financial corporations in Appendix 10, plus the 50 largest banks.

J. C. Penney Co.....	74.4
Allis-Chalmers Manufacturing Co.....	73.2
Columbia Oil & Gasoline Corporation.....	71.8
McKesson & Robbins, Inc. (Md.).....	71.4
S. H. Kress & Co.....	70.4
American I. G. Chemical Corporation.....	69.3
General Foods Corporation.....	67.9

Total..... 10,531.4

#### PUBLIC UTILITIES

Associated Gas & Electric Properties.....	1,125.4
Cities Service Co.....	1,113.2
The North American Co.....	1,042.6
International Paper and Power Co.....	771.2
Pacific Gas & Electric Co.....	647.3
Standard Gas & Electric Co.....	637.3
Interborough Rapid Transit Co.....	554.8
Middle West Corporation.....	400.0
American Waterworks & Electric Co.....	396.7
Utilities Power & Light Corporation.....	367.2
Southern California Edison Co., Ltd.....	360.2
The Detroit Edison Co.....	327.2
Midland United Co.....	320.0
Brooklyn-Manhattan Transit Corporation.....	300.4
Duke Power Co.....	213.6
Pacific Lighting Corporation.....	194.3
Federal Water Service Corporation.....	176.7
Consolidated Gas, Electric Light & Power Co. of Baltimore.....	160.1
Central Public Utility Corporation.....	151.6
Lone Star Gas Corporation.....	134.3
Long Island Lighting Co.....	127.6
Hudson & Manhattan Railroad Co.....	125.5
Chicago Railways Co.....	112.0
Boston Elevated Ry. Co.....	110.6
3d Ave. Ry. Co.....	107.2
Portland Electric Power Co.....	95.0
Community Water Service Co.....	84.5
Jersey Central Power & Light Co.....	80.1
Associated Telephone Utilities Co.....	79.4
Philadelphia Rapid Transit Co.....	73.0
St. Louis Public Service Co.....	72.8
National Fuel Gas Co.....	72.4
The Baltimore Transit Co.....	67.7
Natural Gas Pipeline Co. of America.....	67.3

Total..... 10,669.2

#### RAILROADS

Baltimore & Ohio R. R. Co.....	1,118.3
Atlantic Coast Line R. R. Co.....	786.5
Reading Co.....	495.3
Chicago, Rock Island & Pacific Ry. Co.....	481.2
St. Louis-San Francisco Ry. Co.....	417.9
Seaboard Air Line Ry. Co.....	272.1
Western Maryland Ry. Co.....	168.1
Chicago Great Western R. R. Co.....	141.3
Kansas City Southern Ry. Co.....	131.3
Florida East Coast Ry. Co.....	123.2
Chicago Union Station Co.....	91.4
Chicago & Western Indiana R. R. Co.....	88.9
Terminal Railroad Association of St. Louis.....	77.0
Minneapolis & St. Louis R. R. Co.....	72.0

Total..... 4,464.5

## BANKS

National City Bank.....	1,880.7
Bank of America National Trust and Savings Association.....	1,277.4
Central Hanover Bank & Trust Co.....	914.8
Irving Trust Co.....	720.0
Manufacturers Trust Co.....	673.0
Chemical Bank & Trust Co.....	625.2
Security First National Bank.....	591.0
Philadelphia National Bank.....	452.8
Corn Exchange Bank Trust Co.....	317.4
American Trust Co.....	271.8
Wells Fargo Bank & Union Trust Co.....	248.6
First National Bank (St. Louis).....	235.5
Pennsylvania Co., for Insurance, etc.....	235.3
Anglo-California National Bank.....	214.3
Bank of New York & Trust Co.....	204.5
National Shawmut Bank.....	203.5
First Wisconsin National Bank.....	199.4
First National Bank (Baltimore).....	182.4
Marine Trust Co.....	176.1
San Francisco Bank.....	170.6
Commerce Trust Co.....	165.6
Mercantile-Commercial Bank & Trust Co.....	164.2
Public National Bank & Trust Co.....	156.3
Fidelity Union Trust Co.....	150.6
First National Bank & Trust Co. (Minneapolis).....	149.8
Central National Bank of Cleveland.....	147.0
First National Bank (St. Paul).....	146.9

Crocker-First National Bank.....	142.3
National City Bank of Cleveland.....	137.6
Seattle First National Bank.....	135.8
Bank of California, L. A.....	131.2
Industrial Trust Co. (Providence).....	130.0
Fidelity-Philadelphia Trust Co.....	129.9
Total.....	11,661.3

NOTE.—The assets of the companies on the list of the 260 largest nonfinancials and the 50 largest banks total \$98,108 millions. Of these companies, those not included in the 8 interest groupings control assets of \$87,061 millions, or 87.8 percent.

TABLE II.—Summary of assets of companies connected with the various interest groupings

Interest grouping	Assets (millions of dollars)				
	Industrial	Utilities	Railroads	Banks	Total
Morgan-First National.....	3,920	12,191	9,678	4,421	70,210
Rockefeller.....	4,262			2,551	6,613
Kuhn, Loeb.....		342	9,963	518	10,853
Mellon.....	1,648	839	153	672	3,332
Chicago.....	888	813		2,595	4,295
DuPont.....	2,232			396	2,628
Cleveland.....	1,066			338	1,404
Boston.....	425	554		740	1,719
Total.....	14,411	14,759	16,794	12,061	61,025

NOTE.—The assets of the companies of the 250 list in which these 8 groups have a significant interest, \$60,358 millions, are 62.0 percent of the total assets of the 260 largest nonfinancial companies plus the assets of the 50 largest banks (\$98,350 millions).

### Introduction

The rise of American trade-union membership to unprecedented heights in 1937 has made the influence of workers, as a group, on the determination of policies in industry potentially very much greater than it has been before in this country. Policies in regard to the use of national resources in production will increasingly reflect the result of joint consideration by labor and management of many details in the operation of industry. For an understanding of the operation of the American economy, it is essential, therefore, to consider the nature and extent of labor organization, and the methods through which organized workers participate in the determination of economic policies.

Labor organization, for the purpose of this survey, may be defined as any association of wage earners concerned with the industrial interests of its members. The trade union, traditionally defined as a continuing association of wage earners for the purpose of maintaining or improving the conditions of their working lives, is the predominant type of labor organization. The company union, together with its successor, the "independent union", is included, because among its purposes are attention to working conditions and protection of individual worker's interests, although its scope is narrower than that of the trade union. The fact that some company unions have been employer-dominated and for the primary purpose of preventing trade-union organization does not exclude the entire group from the category of labor organization.

The trade union movement in the United States throughout its history has reflected the character of the economic environment. The first unions, local groups of skilled craftsmen, were organized in the 1790's and early 1800's when the market had broadened enough to introduce merchant-middlemen between consumers and the producer group of craftsmen and their employers, with the resultant competitive pressure on prices and wages. As time went on, the widening of the market brought with it the development of the factory system, competition on a nation-wide basis, and larger scale operations under corporate control. Trade unions reflected these changes, in the development first of local trades unions, through which various craft unions cooperated on local issues; then the establishment of national unions of the various crafts, especially after

the Civil War; and finally the federation of the national unions in the American Federation of Labor in 1886.

Labor organization throughout the century had its periods of resurgence and decline, of experimentation with political action and with utopian panaceas. The Knights of Labor, which rose to its peak in 1886 and rapidly declined thereafter, attempted organization to include all workers, and had broad social and political as well as industrial aims. By the end of the century, however, the American Federation of Labor was dominant among American labor organizations. Its policies of business unionism, hard-headed attention to the wage and hour problems of its members, and organization of the more skilled workers in the type of unions which could deal effectively with their problems, were well established, and resulted in a stability and strength unknown before.

The World War, with its demand for production, scarcity of labor, rising prices, and a generally high level of profits, put organized labor in a strategic position. Membership rose to over five million by 1920, and temporarily included large groups of the less skilled workers who had been unorganized before, especially in the metals, machinery, shipbuilding, transportation, and clothing industries. The gains proved unstable, however, and through most of the decade of the 1920's trade union membership stood again only a little above its pre-war level.<sup>2</sup>

A striking fact of the American labor movement is that it embraced so small a proportion of the workers before 1935. The best estimates<sup>3</sup> indicate that the percentage of all employees organized rose from 8.6 in 1910 to 17.5 in 1920, and fell to 9.3 in 1930. For all nonagricultural employees the percentage rose from 9.9 in 1910 to 19.4 in 1920, and fell to 10.2 in 1930. In the manufacturing field 12.7 percent of the wage-earners were organized in 1923, 10.9 in 1929, and 16.2 in 1933, while in 1935 the percentage had increased to 17.6.

The upturn from the depression in 1933 opened a new chapter in trade-union history. The expansion of union membership which began in that year, and by 1937 had reached perhaps 7,000,000 members, appeared to be a response to long-run underlying factors as well as to more immediate influences. The increase in business

<sup>1</sup> Leo Wolman, *Ebb and Flow in Trade Unionism*, New York, 1936, pp. 16, 28.

<sup>2</sup> *Ibid.*, pp. 116, 227; Wolman, *Union Membership in Great Britain and the United States*, *National Bureau of Economic Research Bulletin* 68, December 27, 1937, p. 11.

<sup>3</sup> Appendix 14 was prepared by Emily C. Brown, assisted by Jean M. Massel.



activity, rising employment, and rising prices provided a stimulus and an increasing opportunity for trade-union activity. Federal legislation encouraging and protecting labor organization, especially the National Industrial Recovery Act and the National Labor Relations Act, were influential in the movement. The widespread character of the movement, however, in areas hitherto entirely unorganized and among unskilled and semiskilled workers, seemed to reflect a new attitude of American workers—a demand for organization through which all workers, skilled and unskilled, could participate in the determination of the industrial policies directly affecting them. The insecurities met during the long depression and accumulated resentments against particular industrial policies contributed to the vigor with which this demand was pushed.

The consequent establishment of trade unionism on a wider scale than ever before, functioning under trade agreements in industries hitherto without experience in this sort of joint control, makes necessary a consideration of present-day trade unionism and its place in the American economy.

### **Current Labor Organizations in the United States**

An attempt to describe the current structure of American labor organizations is confronted by grave difficulties. At a time of rapid development and change, the problem of securing the facts is serious, while facts once obtained rapidly become out of date. Nevertheless, the general outlines of the picture are of more than momentary significance and may be drawn with some definiteness. The details are presented only as the best information available as of September-October 1937.

A number of differentiations must be made in describing American labor organization at this time. The most generally recognized is that between the American Federation of Labor and the Committee for Industrial Organization. A second, not entirely coincident with the first, is that between craft and industrial unionism. In each of these categories are the local, the international union, and the federation. Finally, there are the "unaffiliated" unions, the company unions, and the so-called independent unions.

#### **Craft and Industrial Unionism**

A craft union is a union of workers who perform a certain type of work, with special skills, using tools characteristic of this craft or trade. The jurisdiction is over a rather narrow range of jobs, although the members may work in a considerable number of industries, producing a variety of products. Pure craft unions are relatively rare, most of the so-called craft unions covering several related types of work. Examples of pure

craft unions are those of pattern-makers, window-glass cutters, and locomotive engineers. The unions of carpenters, machinists, printing pressmen, and teamsters are examples of "craft unions" having a jurisdiction broader than single crafts.

The industrial union, on the other hand, has a jurisdiction covering all the workers in an industry, whatever their occupation. The basis of this jurisdiction is the product. Whether the union includes all workers, even office workers and teamsters, however, differs from case to case. Examples of industrial unions are the unions of the men's and women's clothing workers, the mine workers, tobacco workers, and automobile workers.

The lines between craft and industrial unionism are blurred by a number of developments. In certain fields, craft unions are organizing on an industrial basis. The American Federation of Labor awarded jurisdiction over the radio and electrical manufacturing industry to the Brotherhood of Electrical Workers; over the lumber industry to the Carpenters and Joiners; and over the manufacture of aircraft to the International Association of Machinists. The machinists frequently organize on a semi-industrial basis, making agreements to cover all workers in auto repair shops and in many machine shops, and in locomotive building covering all workers except such other skilled groups as pattern-makers and molders. Such tendencies to expand toward industrial organization can be found among other craft unions.

The development of cooperative action by craft unions is another move toward a type of industrial action, while maintaining actual organization on a craft basis. The Pacific Coast Maritime Federation, local building trades councils, and metal trades councils, railroad shop crafts, and the entire group of standard railroad unions, all are examples of arrangements for joint action by craft unions, although the crafts maintain their separate identity.

From the standpoint of industrial structure it is clear that unions cannot be classed simply as craft or industrial. Rather there is a wide range of forms, from the pure craft union which makes craft agreements, through various joint-craft and semi-industrial forms, to the union which organizes and bargains collectively for all workers in the industry as a unit. Experimentation with all these forms is active at the present time, and different types appear to be proving themselves suited to different conditions.

#### **Local and International Unions and the Federation**

The local union is the basic unit of American trade unionism. The great majority of these local unions are members of a national or international union of the same craft or industry. During the years of rapid organization following the National Recovery Admin-

istration the federal local also has been of importance—a local union, directly affiliated with the American Federation of Labor and usually of industrial form, in an industry or group of industries in which there was not at the time a national union. Similar local unions, directly affiliated with the Committee for Industrial Organization, made their appearance more recently.

The international unions, made up of the local units, take their title from the fact that most of them include Canada within their jurisdiction, and a few Mexico, Cuba, and other areas. The international union is the seat of power in the American labor movement. The degree of control over local unions varies, but always is considerable. Autonomy is jealously maintained as against the power of the federation to which the international belongs, although it is the federation which lays down the lines of jurisdiction. On all matters within its jurisdiction, however, the international has authority. It is the international, or its local unions, which engages in collective bargaining, makes agreements, pays strike benefits, and in general carries on the industrial functions of a trade union.

The federation is formed by the affiliation of international or local unions. It sponsors State and city federations or councils of its affiliated unions. Its chief functions are the establishing of jurisdictional lines, the encouragement and support of organizing campaigns, the formulation of general policies for trade union action, and the promotion of legislation and governmental action favorable to the interests of labor. The American Federation of Labor has been for many years the central organization with which the great majority of organized workers are affiliated. The Committee for Industrial Organization functioned from 1936 to 1938 as a loose federation, and in 1938 established itself as a formal organization under a constitution, taking the name: Congress of Industrial Organizations.

#### The American Federation of Labor

The American Federation of Labor had its beginning in 1881 in the Federation of Organized Trades and Labor Unions, and in 1886 was formally organized under its present title. From the beginning it has been a federation of autonomous unions. In 1937 it included 100 national and international unions with their 28,642 local unions, and 1406 local trade and Federal unions directly affiliated with the Federation. The members of these locals were affiliated also through 738 city federations or "central labor unions" and 49 State federations.<sup>4</sup> There were four departments also in the Federation: the Building Trades Department, Metal Trades Department, Railway Department, and a Union Label Trades Department.

<sup>4</sup> American Federation of Labor. *Report of Proceedings of Fifty-seventh Annual Convention, 1937*, p. 76.

The American Federation of Labor, throughout its history, has included craft, industrial, and intermediate forms of unions, but the craft type has been predominant. A satisfactory estimate of proportionate membership is difficult to make, because of the uncertainties as to the type of many unions. However, it is clear that the industrial form came to have a larger share than previously during the upswing of union membership after 1933, because of the disproportionate increases in the mining, clothing, and later in the heavy industries.<sup>5</sup>

The American Federation of Labor has not, as a matter of official policy, preferred either the craft or the industrial form under all circumstances. It has held, however, that jurisdiction rights granted to a union by the American Federation of Labor must not be infringed upon by another union. In practice there have been numerous conflicts over jurisdiction between craft and industrial unions within the Federation. Problems of this sort came to the fore when organization developed on an industrial basis in industries which had been largely unorganized, but in parts of which various craft unions held jurisdiction according to their charters, as in the automobile, rubber, and electrical manufacturing industries.

#### The Committee for Industrial Organization

Before 1935 American trade unionism, with its predominatingly craft character, had not organized the heavy manufacturing industries. In 1934 about two-thirds of all American trade-union members were concentrated in the mining, quarrying and oil, building, transportation and communication, clothing, and paper and printing industries.<sup>6</sup> In manufacturing industries other than clothing and paper and printing, there were only 14 percent of all trade union members.<sup>7</sup> Organization in the heavy industries—automobiles, steel, rubber, and others—was very limited. In order to cover the important gaps in labor organization, the Committee for Industrial Organization was established in November 1935. It was initiated by the presidents of eight international unions affiliated with the American Federation of Labor, under the chairmanship of John L. Lewis of the United Mine Workers. Its purpose was stated in its first official publication:

It has been formed for the purpose of encouraging and promoting the organization of the unorganized workers in mass production and other industries upon an industrial basis. Its aim is to foster recognition and acceptance of collective bargain-

<sup>5</sup> Dr. Wolman estimated that for all American trade unions the approximate percentage of craft unions in all trade union membership was as follows: 1914, 75 percent; 1929, 83 percent; 1933, 73 percent; 1934, 67 percent. (Wolman, *Ebb and Flow in Trade Unionism*, p. 92.) These figures were obtained by deducting from total membership the membership of certain clearly industrial unions, in mining, clothing, shoe, textile, brewing, ship-building, and electrical industries. They probably overestimate the craft percentage.

<sup>6</sup> Wolman, *Ebb and Flow in Trade Unionism*, p. 87.

<sup>7</sup> *Ibid.*, p. 91.

ing in such basic industries; to counsel and advise unorganized and newly organized groups of workers; to bring them under the banner and in affiliation with the American Federation of Labor as industrial organizations.<sup>8</sup>

This action followed upon the refusal of the American Federation of Labor, at its convention in October 1935, to grant unrestricted industrial charters to the unions of automobile, rubber, and other mass-production workers, and its insistence upon protecting the jurisdictional rights of existing craft unions. The test vote on this issue had been 18,024 to 10,933.<sup>9</sup>

This is not the place for a history of the controversy or an appraisal of the merits of the issues involved. The Committee for Industrial Organization proceeded actively to assist organization on an industrial basis among the automobile, rubber, electrical, steel, and other workers. The Executive Council of the American Federation of Labor on August 5, 1936, preferred charges of dualism and violation of their charters against the 10 American Federation of Labor unions which were then members, and ordered them to withdraw from the Committee. Upon their failure to accede, they were suspended as of September 5, 1936. The convention in November 1936, in the enforced absence of the Committee for Industrial Organization unions, upheld the action of the Executive Council.<sup>10</sup>

In October 1937 the Committee for Industrial Organization was functioning as a loose federation of 30 international unions, while the presidents of 2 additional American Federation of Labor unions, the International Typographical Union and the United Hatters, Cap and Millinery Workers, were members of the Committee as individuals. There were also 605 local industrial unions directly chartered. The local unions, both those belonging to the international unions and those directly affiliated, were associated also in the 82 industrial union councils, in cities, counties and States.<sup>11</sup> About half of the constituent unions were former American Federation of Labor members, the others newly organized or formerly independent unions, with a mixture of former American Federation of Labor units. Although the Committee for Industrial Organization did not adopt a formal constitution until November 1938, it was actively performing the functions of a trade union federation.

The Committee for Industrial Organization unions, on the whole, were industrial in character. The American Federation of Labor organizations, as shown earlier, included craft, multiple craft, and industrial forms. In 1937 jurisdictional lines were less rigid than

at any earlier time, as a result of the rapid extension of union organization, the competition between the American Federation of Labor and the Committee for Industrial Organization in organizing new areas, and the resulting experimentation with new forms of organization by both groups. The jurisdictional question was being worked out in the field, and in some cases the formal jurisdictional rights, as stated in union charters, were not in accord with the actual situation.

#### Unaffiliated Unions

In addition to the American Federation of Labor and the Committee for Industrial Organization, which included the greater part of the organized workers, there were in September 1937 a number of independent or unaffiliated international unions. The largest groups were among railroad workers, including the four operating Brotherhoods and other organizations, which had never affiliated with the American Federation of Labor but cooperated fully with the American Federation of Labor unions. Among other groups the situation was in flux, but there were at that time unaffiliated unions of Government employees, shoe workers, maritime workers, and others.

#### Company Unions

The company union has been defined as "an organization confined to workers of a particular company or plant, which has for its purpose the consideration of conditions of employment."<sup>12</sup> It is characterized both by its limitation to the employees of one company,<sup>13</sup> and by the absence of contact or affiliation with the trade union movement. In the great majority of cases the initiative in establishing the organization came from the employer. Originating in "employee representation plans" established early in the century by several companies, the movement received a marked impetus during the war from the efforts of the National War Labor Board and other Federal labor boards to ensure prompt settlement of disputes in war industries. Interest in these plans continued during the post-war decade, as part of the personnel policy of many large corporations, and was one factor in the failure of trade unionism to maintain its post-war peak. The National Industrial Conference Board reported 313 employee representation plans in 1932, covering 1,263,194 employees.<sup>14</sup>

Under the National Industrial Recovery Act the company union movement had a renewal of activity, in

<sup>8</sup> American Federation of Labor, *Report of Proceedings of Fifty-sixth Convention, 1936*, p. 69. See also Committee for Industrial Organization, *The Case for Industrial Organization*, Washington, D. C., March 1936.

<sup>9</sup> American Federation of Labor, *loc. cit.*, p. 65-68.

<sup>10</sup> *Ibid.*, pp. 80-83, 553.

<sup>11</sup> Committee for Industrial Organization, *Report of Director John Brophy to the Meeting of the Committee for Industrial Organization in Atlantic City, October 11, 1937*. Mimeographed, pp. 12-13; also *CIO, What It Is And How It Came To Be*, October 1937, p. 39.

<sup>12</sup> United States Bureau of Labor Statistics, *The Characteristics of Company Unions, 1935*. Bulletin No. 634, p. 3.

<sup>13</sup> In a very few cases these organizations cover a group of companies; for example, the Loyal Legion of Loggers and Lumbermen, or the American Guild of the Printing Industry, in Baltimore.

<sup>14</sup> National Industrial Conference Board, *Collective Bargaining Through Employee Representation*, New York, 1933, p. 16.

competition with the trade union organizing campaign. The number of company unions increased markedly. In 1935, a study by the United States Bureau of Labor Statistics found 592 company unions among 14,725 establishments in manufacturing, mining, and selected service, trade, and public-utility industries. The establishments having company unions employed 528,533 or 27.3 percent of all the workers employed in the plants surveyed.<sup>15</sup> The mass production industries, especially iron and steel and their products, machinery of all kinds, automobiles and other transportation equipment, rayon, petroleum refining, rubber goods, and slaughtering and meat packing, were the sections where company unions were most extensive in 1935. In these industries, the proportion of workers in plants with company unions ranged from about one-half to over 80 percent of the total.<sup>16</sup>

The changes occurring by September 1937 had greatly altered this situation. The success of trade union organizing campaigns, as indicated above, had established strong trade unions, functioning under trade agreements in the manufacture of steel, automobiles, radios and electrical machinery, rayon, and rubber goods, and in petroleum refining, as well as in other areas. Company unions continued to function at points within these as well as other fields, but they were much less extensive than two years earlier.

Valuable data on the nature of company unions are given in the study of the Bureau of Labor Statistics, which analyzes questionnaire reports on 592 company unions, and an additional more detailed field study of 126 cases. The Bureau estimated that more than half of the company unions studied were agencies for discussion only, or benefit and welfare associations, rather than organizations to perform the functions usually included under the term collective bargaining. About a third more were undertaking only a few of the activities in which trade unions normally engage, such as settling grievances, while broad questions of wages and hours, if discussed at all, "had not been submitted to a process of negotiation and bargaining. \* \* \* Where these company unions have been successful in the limited area of grievance adjustment, a liberal, intelligent attitude on the part of management has been an important factor. With careful cooperation by management about half of the company unions in this group have become effective avenues for the adjustment of individual grievances." A final 15 percent were found to be "seriously attempting to function in those fields commonly ascribed to collective bargaining. They represented the interests of the workers with a vigor not entirely attributable to management en-

couragement."<sup>17</sup> But even the company unions which more or less approximated the trade union in form, with membership, dues, and written agreements, continued in most cases to be limited to a single company, and to hold themselves aloof from the trade union movement.<sup>18</sup>

#### Independent Unions

A development since 1935, and especially in 1937 after the Supreme Court upheld the constitutionality of the National Labor Relations Act, has been the appearance of labor organizations calling themselves independent unions. These differ from the unaffiliated unions such as the railroad brotherhoods in that typically they are limited to the employees of single companies. In compliance with the requirements of the National Labor Relations Act, they claim to be completely independent of management. They are independent also of connection with the trade union movement. "Independent company union" would perhaps be an appropriate name. In large numbers of cases they are the successors of company unions, and represent a continuation of the trend toward independence already apparent in 1935.

Information on these organizations is scanty.<sup>19</sup> They are often incorporated. They provide for financing by dues from their membership. Some of them have made written agreements. Some have won elections conducted by the National Labor Relations Board for the selection of collective bargaining representatives.<sup>20</sup> Others have been declared by the National Labor Relations Board to be company dominated and therefore illegal.<sup>21</sup> Attempts to form national federations of these independent unions have been made, but little information is available on their operations.

#### Trade Union Membership in the United States in 1937

Any estimate of the membership of trade unions in the United States in the fall of 1937 is subject to serious errors. Reports are available from both the major groups of unions, but there are gaps in the data, and question as to the comparability and accuracy of the figures available.

A discussion of the difficulties involved in attempting to estimate trade union membership is pertinent.<sup>22</sup> For

<sup>17</sup> *Ibid.*, pp. 204-5.

<sup>18</sup> *Ibid.*, p. 204.

<sup>19</sup> See National Labor Relations Board, Research Memorandum No. 1, March 14, 1938, *Statistical Analysis of 85 "Independent" Unions and Readapted Company Unions*, mimeographed. National Association of Manufacturers, *Labor Relations Bulletin*, July 23, 1937, pp. 3, 16-27; A. S. Regula, Employee representation and independent employee associations, American Management Association, *Personnel Series* No. 34, 1938; David J. Saposs and Elizabeth T. Bliss, *Anti-Labor Activities in the United States*, League for Industrial Democracy, June 1938, pp. 8-17.

<sup>20</sup> From October 1935 through December 1937, company unions or local independent unions won 103 or 48.6 percent of the 212 elections in which they participated, 99 of these victories occurring in 1937. Emily Marks and Mary Bartlett, "Employee elections conducted by the National Labor Relations Board," *Monthly Labor Review*, July 1938, pp. 33-34.

<sup>21</sup> See list of 55 such cases in Saposs and Bliss, *loc. cit.*, pp. 32-33.

<sup>22</sup> For a full discussion, see Wolman, *Ebb and Flow in Trade Unionism*, ch. 1 and National Bureau of Economic Research Bulletin 68, pp. 3-5.

<sup>15</sup> *Characteristics of Company Unions, 1935*, pp. 31-33. Returns from 14,725 firms were received from a questionnaire sent to approximately 43,000 firms. In 96 of the plants, including 7.4 percent of the total workers covered, trade unions also existed.

<sup>16</sup> *Ibid.*, pp. 42-45.

the American Federation of Labor, the source of membership information is the report of voting strength of the international unions in the annual report of the Executive Council. This voting strength is based upon the monthly per capita tax paid by the affiliated unions to the Federation throughout the preceding year. The accuracy of the resulting figures differs according to the practice of the union concerned. As Dr. Wolman points out, the figures underestimate actual strength when unemployed members, temporarily unable to pay dues, are not counted or paid on. On the other hand, some unions either to bolster their prestige or to maintain their vote in the American Federation of Labor, report and pay on a larger number than are actually paid up within the union. The figures reported annually by the American Federation of Labor are therefore actual paid-up membership so far as the Federation itself is concerned, although not necessarily the actual numbers who are paying dues to the international unions.

For the Committee for Industrial Organization the problem is even more difficult. Since it was not yet established on a formal basis with a constitution and annual reports, its current statements on membership necessarily were somewhat informal. Paid up membership could be reported for its well-established unions. However, for some of the unions in process of organization, the evidence of their strength was not the number actually paying dues but the number who had signed pledge cards or in other ways indicated support. Moreover, the numbers of either dues-paying or informally affiliated members change so rapidly that no one figure is of great significance. In a period of rapid organization membership figures quoted are inevitably an estimate including actually paid-up members, unemployed members exonerated from dues, signed-up but not yet paid-up members, and in some cases estimates of organizers as to numbers owing allegiance to the union. It is impossible to estimate the extent to which the membership reported in October 1937 was dues-paying.

For the American Federation of Labor, total paid membership in August 1937 was reported as 3,271,726. Membership the previous August had been 3,586,567, including the Committee for Industrial Organization unions.<sup>23</sup> Thus an increase of nearly 600,000 members was shown to replace the more than 900,000 of the suspended Committee for Industrial Organization unions. Among the groups which had made substantial gains were the machinists, the electrical workers, the teamsters, and the directly affiliated local unions in a wide

variety of industries. The building trades were the largest groups in the American Federation of Labor, and transportation and the metal trades the next.

For the Committee for Industrial Organization, it was announced on September 2, 1937, that membership amounted to 3,718,000. Of this number, 2,765,000 were included in 11 unions in the coal, auto, steel, garment, textile, lumber, rubber, electrical manufacturing, power and transport industries. Local unions directly chartered had a membership of some 200,000. The remaining 750,000 were in other international unions.<sup>24</sup>

The membership, or the number covered by agreements, as reported for some of the largest unions of the Committee for Industrial Organization, is given in the table below.

TABLE I.—Membership or numbers covered by agreements, in largest unions of Committee for Industrial Organization, October 1937

Union	Membership	Number covered by agreements
United Mine Workers	600,000	
United Automobile Workers	375,000	
Steel Workers Organizing Committee		560,000
Textile Workers Organizing Committee	450,000	270,000
International Ladies' Garment Workers Union	250,000	
Amalgamated Clothing Workers	225,000	
United Electrical, Radio, and Machine Workers	137,000	
Transport Workers Union	80,000	
United Rubber Workers	75,000	
Petroleum Workers Organizing Committee		65,000

Compiled from: Committee for Industrial Organization. *C. I. O., What It Is and How It Came To Be*. October 1937, pp. 26-40; *Report of Director John Brophy to the Meeting of the Committee for Industrial Organization, in Atlantic City, Oct. 11, 1937*, pp. 3-11. The figure given for Textile Workers membership is of pledges signed.

For the trade unions which were not affiliated with either the American Federation of Labor or the Committee for Industrial Organization, up-to-date membership figures were lacking. The largest groups were in the transportation and communications field, and in public service, where there were in 1935 estimated memberships of 299,200 and 151,200.<sup>25</sup> Some of the unions which in 1935 had been independent had by 1937 affiliated with one or the other of the chief groups. The total membership of the unaffiliated unions in 1937 has been estimated at not more than 550,000.<sup>26</sup> For company unions and the more recently organized independent unions (or independent company unions) no membership figures were available.

Totaling these unsatisfactory membership figures, a very rough estimate is obtained of the membership claimed for all trade unions in the United States in the autumn of 1937:

<sup>23</sup> Radio address of John L. Lewis *New York Times*, September 4, 1937.

<sup>24</sup> Wolman: *Ebb and Flow in Trade Unionism*, p. 238.

<sup>25</sup> Wolman, *National Bureau of Economics Research Bulletin* 65, p. 5.

<sup>26</sup> American Federation of Labor, *Report of Proceedings of the Fifty-sixth Annual Convention, 1936*, p. 41; *Fifty-seventh Annual Convention, 1937*, p. 76.

American Federation of Labor.....	3,271,000
Committee for Industrial Organization.....	3,718,000
Unaffiliated trade unions.....	550,000
<b>Total.....</b>	<b>7,539,000</b>

This figure of 7,539,000 for the fall of 1937 is undoubtedly higher than actual paid-up membership. There is no reason to doubt, however, that actual membership was substantially above the previous high point estimated at 5,047,800 in 1920.<sup>27</sup>

The fact of increased trade union organization and the resultant increased participation of labor in the determination of industrial policies is indicated by several other types of evidence. The extent to which workers in different industries were covered by trade union agreements in July 1938 has been roughly estimated by the United States Bureau of Labor Statistics.<sup>28</sup> Among the large industries almost entirely covered by such agreements were men's and women's clothing, coal mining, newspaper printing and publishing, and railroad train and yard services. A large proportion, estimated at more than half of the employees, were covered by agreements in the automobile, book, magazine, and job printing, building and construction, electrical equipment, iron and steel, machinery, and rubber industries, and railroad shops, maintenance and clerical service. Substantial proportions were covered in other industries. Union strength was thus uneven. There were considerable areas in which there was little participation, while in others union collective bargaining was widespread and well-established.

The results of elections conducted by the National Labor Relations Board and its predecessors give another indication of trade union strength, in the numerous and widely distributed cases where disputes over the choice of employees' representatives for collective bargaining were settled by this means. As shown in the accompanying table II, trade unions won approximately three-fourths of the elections under the National Labor Board in 1933-34, and again under the present National Labor Relations Board from October 1935 through December 1937, while in the smaller number conducted by the first National Labor Relations Board in 1934-35, they won 58.2 percent. Company unions won 23.1 percent in 1933-34, and increased their percentage to 29.2 in the next year, while from 1935 through 1937 company unions and local independent unions won only 10.7 percent of all elections conducted.

<sup>27</sup> Wolman, *Ebb and Flow in Trade Unionism*, p. 16. For 1938 the American Federation of Labor reported its August paid membership as 3,623,087. American Federation of Labor, *Report of Executive Council to Fifty-eighth Annual Convention, 1938*, p. 9. The Committee for Industrial Organization reported its membership in October 1938 as 4,037,877. *Report of Chairman John L. Lewis to the First Constitutional Convention of the C I O*, Pittsburgh, Pa., November 14, 1938, p. 30.

<sup>28</sup> See Ch. VII, pp. 118, 119.

TABLE II.—Results of elections conducted by the National Labor Relations Board, 1933-37

Date	Number of elections	Number of valid votes	Percentage of elections won by—		
			Trade unions	Company unions or local independents	No organization
August 1933-July 1934.....	546	103,714	74.7	23.1	2.2
July 1934-June 1935.....	154	45,287	58.2	29.2	12.6
October 1935-December 1937.....	966	402,300	74.8	10.7	14.5

<sup>1</sup> Emily Clark Brown, Selection of employees' representatives, *Monthly Labor Review*, January 1935, pp. 1-18.

<sup>2</sup> George Shaw Wheeler, Employee elections conducted by the National Labor Relations Board to June 16, 1935. *Monthly Labor Review*, October 1935, pp. 956-7.

<sup>3</sup> Emily Marks and Mary Bartlett, Employee elections conducted by the National Labor Relations Board, *Monthly Labor Review*, July 1938, pp. 31-38.

That conflict has attended this trend toward increased union membership and increased establishment of collective bargaining on a trade union basis is shown by the statistics of strikes, and the reports of the National Labor Relations Board on its cases. The number of strikes increased sharply from 1933 on reaching its peak in 1937, as shown in table III. It is significant, however, that a greatly increased proportion of all strikes had as their major issue questions of union recognition or other matters related to union organization. Such strikes in 1937 reached the peak of 57.8 of the total.

TABLE III.—Strikes in the United States, 1927-37

Year	Number of strikes	Number of workers involved	Percent of strikes in which union organization was major issue
1927.....	707	329,939	36.0
1928.....	604	314,210	36.5
1929.....	921	288,572	41.3
1930.....	637	182,975	31.8
1931.....	810	341,817	27.8
1932.....	841	324,210	19.0
1933.....	1,695	1,168,272	31.9
1934.....	1,836	1,466,695	45.9
1935.....	2,014	1,117,213	47.2
1936.....	2,172	788,648	50.2
1937.....	4,740	1,860,621	57.8

U. S. Bureau of Labor Statistics, Bulletin No. 651, *Strikes in the United States, 1880-1936*, pp. 21, 62. *Monthly Labor Review*, May 1938, pp. 1188, 1200.

The statistics thus suggest that failure to accept trade union collective bargaining was responsible for a very substantial part of the strikes during this period of rapid transition. On the other hand, the National Labor Relations Board reports that of its cases on charges of unfair labor practices and issues over representation, a large proportion of those finally disposed of were closed by agreement of the workers and employers. For the entire period from October 1935 to October 1, 1938, of 13,472 cases closed, 7,174 or 53 percent, were closed by agreement of both parties.<sup>29</sup>

<sup>29</sup> National Labor Relations Board, *News Release*, R-1260, October 29, 1938.

## The Nature of Trade Union Participation in Industrial Management

### The Collective Agreement

The collective agreement is the immediate goal of trade unionism, although trade unions, however strong, have found this instrument inadequate in some respects for their purposes and therefore have turned to governmental action to deal with some of their problems. When labor organization attains such strength that it can influence economic policies in any industry, it tends to record the amount and kinds of its participation in industrial management in a collective agreement entered into by the union and representatives of the management. In those parts of industry in which trade unions have been established in the past, collective agreements have been extensive. With the recent expansion of unionism, collective agreements have appeared in many important industrial fields hitherto untouched by such instruments.<sup>30</sup> Under these circumstances it is desirable to consider the nature of these agreements and their indication of the extent and type of participation by workers in the determination of industrial policy.

A collective agreement, or trade agreement, is a document which results from the process of collective bargaining or negotiation between representatives of workers and of their employer or employers, over the conditions of their employment. These agreements range from very brief and simple statements of wages, hours, and other conditions to highly developed and elaborate regulation of many details of industrial relationships. Their essence is, however, their statement in writing of the details of an agreement between employees collectively and their employer or employers, on certain points as to the conditions of employment.

The collective agreement reflects accordingly the industrial purposes of the labor organization which negotiates it. These purposes, varying in detail among the organizations, may nevertheless be summed up under four points: First, establishment of uniform standards in labor conditions, to protect workers as a group from the undermining competition of individual workers and wage-cutting or price-cutting employers; second, positive improvements in wages, hours, and working conditions; third, the protection of the job, and the establishment of a measure of security for individual workers; fourth, the establishment of means whereby workers can influence the determination of industrial policies which directly affect them. All of these purposes are to be seen throughout the history of trade unionism. In some of the newer trade unions, now on the upswing, the third and fourth appear of especial importance, since standards of wages and hours in these industries

were already relatively good, and not the greatest sources of dissatisfaction. The influence of the depression on job insecurity is clearly seen in many of the newer agreements. The demand for recognition and a voice in industry, clear in all agreements, is a product both of recent trends in governmental policy, notably the National Industrial Recovery Act and the National Labor Relations Act, and of the trend, in a country which prizes its political democracy, whereby workers come to demand some measure of democracy in the determination of the industrial policies which affect them.

Collective agreements are possible only after labor has organized, has been recognized by the employer for purposes of negotiation on matters of common interest, and has negotiated and reached agreement on these questions. Strikes, picketing, and boycotts are methods used by labor in the preliminary stage of organizing and securing recognition, just as lockouts, black lists, labor espionage, hiring of strike breakers, and securing of injunctions are methods used by employers who are unready to recognize unions and bargain with them. Labor conflicts occur also in the breakdown of negotiations, but the most bitter strikes are those which involve the right of the union to exist and function. Of the strikes ending in 1937, there were 57.8 percent, affecting 59.8 percent of the workers involved in strikes, which had as major issues questions of union recognition, discrimination, or other union organization matters.<sup>31</sup> Since the concern here, however, is not the problem of attaining recognition and the collective agreement, but rather the nature of the resulting labor participation in determination of policy in industry, the problem of labor conflicts will not be further discussed.

Collective agreements can be classified according to the geographic area and the industrial area covered. They can be analyzed as to the subjects upon which they touch, and as to the mechanisms of enforcement and administration of the systems of industrial law established by the agreement. Each of these points will be discussed briefly and certain points noted with respect to recent trends.<sup>32</sup>

Since the local union is the basic unit in American trade unionism, and since control over a wider area involves many difficulties, it is not surprising that the most common geographic area for the collective agreement is the local market. These local agreements are negotiated and signed by the union sometimes with an association of employers and sometimes with individual employers, but they tend to set the standards for the

<sup>31</sup> Review of Strikes in 1937. *Monthly Labor Review*, May 1938, p. 1200.

<sup>32</sup> Unfortunately there is no adequate extensive analysis of the collective agreements now in effect in all industries. Raw material exists in the valuable file of collective agreements of the U. S. Bureau of Labor Statistics and was used in the present brief analysis. See articles on collective bargaining in various industries in the *Monthly Labor Review*, 1936-1938; also the National Industrial Conference Board, *Conference Board Service Letter*, August 31, 1937, September 30, 1937, and October 30, 1937.

<sup>30</sup> See chapter VII, pp. 118, 119.

entire local market. Typically, the agreements of the building trades, printing trades, garment trades, metal trades, and many others, are of this nature. In some of these cases the competitive market is a local one, and coincident with the area of collective bargaining, but in more cases this is not true. Tendencies toward standardization over a wider area, however, result in some cases from standards prescribed in union constitutions or by union convention action, from requirements that agreements are subject to approval by international union officials, and by the participation of such officers in local negotiations.<sup>33</sup>

At the other extreme are national agreements, which set standards for the entire national market, and are negotiated by national collective bargaining machinery.<sup>34</sup> Their actual coverage differs, from industries with very extensive organization to others in which the standards have been accepted by only a part of the industry. Such agreements have existed for many years in various branches of the glass industry, in the pottery industry, and among stove molders. The installation of automatic sprinklers is controlled under a national agreement. Early in 1937, a national agreement was signed by the Tile and Mantel Contractors' Association and the bricklayers' union. The agreement in sections of the full-fashioned hosiery industry has for some years exerted great influence toward uniformity of labor conditions in the industry.<sup>35</sup> In addition to these formal collective agreements on a national basis, national collective bargaining on certain points has developed in several cases. On the railroads the collective agreements are made by the various unions with the individual railroads. However, national collective bargaining conferences between the Association of Railway Labor Executives, representing the 21 standard railroad unions, and representatives of the carriers, have resulted in general wage decreases or increases, as well as agreements on other matters, such as dismissal compensation for employees displaced by coordination of railroads. The first national collective bargaining in the men's coat and suit industry, in 1937, resulted in an agreement covering 135,000 members of the Amalgamated Clothing Workers.<sup>36</sup>

The agreements in the bituminous coal industry illustrate intermediate types of agreements, covering broad districts, but not the entire market. The Appalachian agreement is the basic bituminous coal agreement negotiated by representatives of the United Mine Workers and the operators from some eight States. Since detailed agreements for the various dis-

tricts and agreements for other parts of the country are negotiated later, the Appalachian agreement sets standards which influence all other agreements in the industry. In a number of other industries considerable districts are covered by agreements negotiated and signed by a group of employers. Examples are the agreements in the pulp and paper industry of the Pacific coast, the Pacific coast agreements of the various maritime unions, and the textile dyeing and finishing agreements covering New York and New Jersey. An agreement for the silk and rayon industry, negotiated in 1937 by a group of manufacturers and the Textile Workers' Organizing Committee, was later signed by mills which were reported to employ more than half of the workers of the industry.<sup>37</sup> The United Automobile workers have signed agreements covering tool and die plants and other highly competitive sections of the industry. All of these agreements, in varying degrees, result in a standardization of labor conditions over an area wider than the local labor market.

A fourth type of agreement, now becoming of much greater importance than previously, is the agreement negotiated with the great corporation. When the agreement covers many plants, in different States, and is negotiated between international officers of the union and executives of the corporation, it represents collective bargaining of extensive coverage. A further influence toward standardization of conditions arises in some industries when agreements made with various companies are in much the same form. Agreements in 1936 and 1937 were made with General Motors and other automobile companies, Carnegie-Illinois and other steel companies, Sinclair and other oil companies, Firestone and other rubber companies, the Viscose Corporation, the Aluminum Co. of America, the Anaconda Copper Co., and innumerable others. This development brings the collective agreement extensively into mass-production industries, and results in new problems and new techniques as trade-unions develop methods of participation in the determination of policy under these different conditions.

Classifying collective agreements according to their industrial jurisdiction, we find craft, industrial, and joint-craft agreements, with numerous variations and combinations of the basic types. The craft agreement is typical among the building, printing, and metal trades, the railroad unions, the maritime unions, and others. The industrial agreement, on the other hand, covers essentially all workers in the industry, although the inclusiveness of such coverage differs somewhat from union to union. Typical industrial agreements are those in the coal, brewery, and garment industries for the older unions, and in the automobile, steel, rubber,

<sup>33</sup> U. S. Bureau of Labor Statistics Bulletin No. 618, *Hand Book of American Trade Unions*, 1936 Edition, pp. 19-20.

<sup>34</sup> *Ibid.*, pp. 21-23.

<sup>35</sup> George W. Taylor, "Trade union agreements," in *American Management Association, Personnel Series* No. 27, 1937, pp. 26-35.

<sup>36</sup> *Monthly Labor Review*, July 1937, pp. 23-24.

<sup>37</sup> Committee for Industrial Organization, *Union News Service*, August 23, 1937.



radio, rayon, and textile industries for the new types. In a few cases, especially in the garment industry, craft locals are the basic union unit within the industrial union, but the agreement is an industrial agreement.

There is also a tendency toward joint action in negotiating agreements by craft unions and sometimes craft and industrial unions. The railroad unions since 1932 have negotiated in groups through national collective bargaining conferences on national issues, although the agreements are made by each separate union, or group of unions such as the shop crafts, with each carrier. The Pacific maritime unions negotiate jointly, and their craft agreements signed by the individual unions have similar expiration dates. The building trades through the local Building Trades Councils sometimes cooperate in the negotiation of contracts. In some cases, as in Chicago, a standard agreement negotiated with an employers' association is used by many of the building crafts as the basis of their separate agreements, written with uniform expiration dates.

Instances of agreements negotiated by two or more unions and signed jointly occur also in various industries. In a few cases, notably on the Pacific coast, general joint agreements covering all the building crafts are signed with local contractors' associations. Railroad shop craft agreements, signed by a group of unions, have been mentioned. The Pacific coast pulp and paper agreement is signed by the two international unions of paper makers, and pulp, sulphite, and paper mill workers. The Anaconda Copper Co. has one agreement signed by 14 craft unions of building and metal trades, and another of approximately the same dates, signed by the mine, mill, and smelter workers. The Aluminum Co. of America signed its first agreement with federal locals of aluminum workers and one local union of machinists. Another aluminum agreement reported was signed by 16 unions, federal and craft locals, as a joint council.<sup>35</sup>

A problem arises in connection with such agreements made jointly by a group of local unions, however, over conflicts between local or district autonomy and control by the international unions. In cases where local unions do not have autonomy in the making of agreements, cooperative joint action with other crafts is sometimes hindered. Such difficulties have occurred in the building trades, among the maritime unions, and elsewhere.<sup>36</sup>

While independent craft agreements continue to be the chief form in fields where craft lines remain distinct and craft workers are in the majority, the trend toward joint negotiation is marked in spite of difficulties, and joint agreements are appearing. The development of

various types of industrial agreements in other fields where craft lines are of less importance, on the other hand, has become a significant movement in recent years. The usefulness of possible variations in the industrial character of agreements is being tested by the active experiments under way.

#### Subjects Covered by Agreements

A reading of typical collective agreements gives impressive evidence of the extent to which trade unions participate in industrial management. While some agreements specify little more than basic standards of wages and hours and provisions for settlement of disputes, others give highly detailed rules for many aspects of labor and business activity. The more important subjects covered by these agreements may be classified under seven heads: Union recognition, working time, wages, physical conditions, labor supply and employment policies, job protection, and enforcement of the agreement.

The first essential in the agreement is the statement of the extent of recognition of the union, either as the representative for all employees or as the representative only for the members of the union. In the former case the union has sole bargaining rights even though there is no closed shop.

The regulation of working time starts with the establishment of the basic work day and week, and goes on to regulation of overtime and night work, both as to whether and under what conditions it is permissible and as to penalty rates of pay. Regulation or prohibition of work on Sundays and holidays is often included.

As to wages, rates per hour or week, or sometimes piece rates, are usually written into the agreement. Corporation-wide agreements, however, sometimes provide only for local negotiations on wage questions. There are many regulations of pay for overtime, and for work on Sundays or holidays. In a few cases certain holidays are paid for. Vacations with pay are found in an increasing number of cases, for instance in agreements in the rubber, oil, and steel industries, and among street railway and bus companies.<sup>40</sup> Numerous provisions are found for extra pay if workers are called in for a short time, or are forced to wait for work. Penalties for lower rates for older or disabled workers occur occasionally. Provisions for the time and method of payment are often included. Coal miners have a right to checkweighmen of their own choosing to inspect the weighing of coal as a basis for payment.

Union participation in job study and the determination of piece rates and production standards is very extensive in some industries. In the garment industries, the highly technical problem of setting piece rates on

<sup>35</sup> *American Federationist*, August 1937, pp. 832-4.

<sup>36</sup> Lewis L. Lorwin, *The American Federation of Labor*, Washington, 1933, pp. 307, 376-77, 387.

<sup>40</sup> *Monthly Labor Review*, June 1937, pp. 1486-88; August 1938, pp. 269-74.

each type of garment, to conform to the standards of weekly minimum rates, is handled in each case by a committee representing the union and the workers in the particular shop, and the manufacturers. Classification of grades of garments, standardization, and the time study of operations is a necessary basis. Examples of job classification procedures may be found in various industries. In certain sections of the hosiery industry, for example, the complicated structure of piece rates is based upon time and production studies made jointly by the union and manufacturers or by the impartial chairman. One petroleum agreement provides for plant committees to work on job classification. Flat glass agreements provide for discussion of the bonus system by an industrial relations committee, and for a survey of occupations for the purpose of establishing uniform rates. Agreements in the automobile and rubber industries permit negotiation on matters of production standards, speed, and wage rates. The purpose of standardizing labor costs throughout the market is also explicit in many agreements in such provisions as that union members shall not work for less than the scale, and that the union shall make no more favorable agreement with other manufacturers.

On physical conditions there are numerous provisions, usually not in detail, requiring the provision of safe and healthful work places. The obligation of the employer to furnish adequate tools, machines, and materials, is sometimes stated. There is occasional regulation of physical examinations, reflecting fear of abuses. Regulation of work loads, speed, and number of men on machines is in part a regulation of physical conditions, although to a greater extent, probably, a form of job protection. A work-load adjustment board is provided in certain textile and other agreements. Many agreements regulate the minimum number of men on certain types of machines.

The first of the regulations of labor supply and employment policies are the closed shop clauses. These are very general among the older well-established unions such as the building and printing trades, and in the garment industry. They are less frequently found in the agreements more recently made by the newer unions. In their place are the provisions for union recognition, clauses following Federal legislation in guaranteeing no discrimination against union members, and no interference with the right of organization. In some cases new employees are to be secured from the union, and the union is responsible for providing an adequate supply of efficient labor. Prohibition of child labor and home work is provided in some agreements. The detailed regulation of apprenticeship by the skilled crafts serves the double purpose of providing properly trained workers and of restricting numbers

in the interest of higher rates of pay and regular employment.

The provisions for protection of jobs are very important in many agreements and reflect the great insecurity and scarcity of job opportunity in recent years. Some agreements list permissible causes for discharge, while others provide only that the discharge must be for good cause. Provision for appeals on discharge are frequently found. Under the hosiery agreement the union is to be notified of unsatisfactory work or conduct which might lead to discharge, and assumes responsibility for improving substandard job performances.

As to the job rights of individuals, there are two main schools of thought, one emphasizing seniority rights, and the other equal division of work among regular employees. In the highly seasonal garment industries, equal division of the available work is the rule. This is true also in the hosiery industry and in breweries, and in most bakery agreements. At the other extreme are the seniority provisions in the railroad agreements, and in many of the newer mass-production agreements. Very detailed provisions in the automobile, rubber, petroleum, and other such agreements lay down rules for individual rights in lay-off, rehiring, and sometimes transfer and promotion, in accordance with length of service. The steel agreements provide for consideration of seniority as one among other factors. These agreements reflect the depression experience of job scarcity, and the fear of arbitrary and discriminatory treatment of individuals. Some agreements combine seniority rights with provisions for sharing work in various ways under certain conditions. Thus, many of the mass production agreements provide for a reduction of hours to 32 or 24 before lay-offs of permanent employees. The printers' agreements, while emphasizing seniority, nevertheless of recent years have provided for temporary reduction of hours, the hiring of substitutes, and limitation of overtime. The building trades also developed various methods of work sharing.

Another type of approach to the question of job protection is through the regulation of new machinery and processes, or of output. All of these reflect the fear of unemployment. Some definitely restrictive rules are found, especially in craft agreements. Restriction on the size of paint brush permitted, and of the exchange of type between firms, are examples. Prohibition of any restriction of output is, on the other hand, found in many agreements. The regulation of new machinery, to avoid undue hardship to workers, is seen in work-load adjustment boards in textile agreements, in joint control of the introduction of new machinery and limitation of pressing machines in the dress industry, in the New York cloak makers' unemployment fund for press-

ers, maintained by employer contributions based on the number of his pressing machines,<sup>41</sup> and in the glass manufacturers' agreement "to avoid any unwarranted expansion in the use of cutting-machine equipment." The Appalachian agreement provides for a mechanized mining commission for joint study of the problems resulting from mechanization. Skilled craft workers have tended strongly to protect their jobs by opposing new methods of production. As such craft protection becomes less possible, however, union policy has shifted toward regulation of these changes, as indicated in the examples which have been given.

Restrictions on nonunion materials occur in some agreements, for example in the building and printing trades. Sometimes, the right is reserved to refuse "struck work," coming from a firm whose employees are on strike. In some cases there are prohibitions of prison-made materials. All such provisions may be interpreted as job protection devices for the entire group of union workers.

#### Enforcement

A final series of important provisions includes those relating to the enforcement of the agreement and the settlement of disputes during its life. The period during which the agreement is in force is stated. Prohibition of strikes, lockouts, or stoppages of any sort is usually included. Provision for interpretation of the agreement and settlement of disputes under the agreement is therefore necessary. The negotiation of a new agreement is a different problem, for which in most cases there is no more regulation than the statement of the time and conditions under which negotiations should begin, although occasionally there is provision for arbitration in case of failure to reach an agreement.

The provisions as to enforcement are of too great variety to be discussed in detail. The general outlines can be drawn of typical procedure under the well-established older agreements, however, with separate discussion of the adjustment machinery in the newer, large corporation agreements. Under the former agreements, there is usually a union representative elected in each unit, often called the shop chairman, who has first responsibility for seeing that the agreement is enforced and for taking up disputes with the company. Officers of the local union, the business agent or organizer, are called upon when necessary in adjustments and are in authority over the shop chairman. In many cases an *ad hoc* committee or a joint standing committee, representing the local union and local employers, has authority to decide all cases referred to it. Such joint committees often are authorized to choose an impartial arbitrator in case of their failure to agree. In many

agreements there is complete commitment on both sides to refer to arbitration, if necessary, any disputes over the interpretation of the agreement. Under the Railway Labor Act arbitration is compulsory for any disputes arising over interpretation of the agreements and not settled by the parties themselves. A National Railroad Adjustment Board, composed of representatives of the unions and carriers, was provided for that purpose.

In a number of cases, industries have established permanent impartial machinery, which functions effectively in interpreting and enforcing the agreements and maintaining the standards. The permanent impartial chairmen play a very important role in the men's and women's clothing industries in the chief markets, in the hosiery industry, and in some others. They have extensive powers to examine books and records, call witnesses, interpret the agreement, make decisions and assess penalties for violations, and work in close cooperation with the representatives of the union and the employers' associations in the policing of the industry.

In agreements of large corporations in the mass production industries, the machinery for settlement of individual grievances or other disputes in the plant, as well as for negotiation on questions of broader interest, is much emphasized. Provision is made for union representation in each division of the plant and for a shop bargaining committee which in some cases is composed of the division representatives. In other cases a "steward system" provides a union steward or representative in each small section, while a smaller group of representatives is elected as the bargaining committee. The agreements outline the steps to be taken in settling disputes, from the first contact between an aggrieved worker or his representative and the foreman, to the bargaining committee and the plant management, to higher union officials and corporation management, and in some cases to arbitration. Experimentation is under way in these industries with various forms of bargaining machinery, in an effort to establish systems that will handle quickly and effectively the grievances that arise among the thousands of workers in any large plant.

The administrative machinery under the agreement is of especial importance in the case of the corporation-wide agreement in mass production industries. The agreements themselves tend to be relatively simple, and to leave much to local collective bargaining. In these cases the agreements establish certain general standards for hours, overtime, sometimes wages, and other matters. In addition they include detailed regulations as to individual rights on seniority, division of work, and other matters. The collective bargaining machinery is expected to handle the detailed local application of the general labor standards, to take up any other matters

<sup>41</sup> Lazare Teper, *The Women's Garment Industry*, International Ladies Garment Workers Union, New York, 1937, p. 27.

of interest to workers and management as they arise in the plants, and to settle any individual grievances. Flexible adjustment to the changing needs of production in a large plant is thus possible through the local and immediate consideration of problems by the local union committee and the management. Collective bargaining here includes this highly important and more or less continuous negotiation process in the plant, as well as the making of the written agreement.

### **The Place of Trade-Unions in the American Economy**

Among the varied forces which are changing the American economy from one regulated by impersonal competition to one in which policies are administratively determined is the establishment of trade-unions on a basis of such stability and strength that they are able to influence the determination of policies in many industries. Trade-unions in a small number of cases in the past, and in an increasing number of industries now, stand among the other groups of ownership, corporate management, or Government agencies which make decisions crucial to the direction of industry.

The preceding summary has brought out the extent to which trade-unions were participating in industrial management in 1937. The marked increase in union membership, especially among semiskilled and unskilled, as well as among white-collar, professional, and Government workers, reflected an organizing movement of great vitality. Collective bargaining on a basis of written trade agreements was being carried on more widely than ever before in this country. Agreements signed by great corporations were numerous in the mass production industries. Agreements were tending to cover wider geographic areas, both in the corporation-wide agreements covering a number of plants, and in the case of those agreements binding a group of competitors. Agreements were written increasingly on an industrial basis, whether they were signed by a single industrial union or by a group of craft or semi-industrial unions in cooperation.

In various parts of industry, there is evidence of a

tendency for organized workers in dealing with management to give broad consideration to the economic problems of the industry. The trend toward agreements on an industrial or semi-industrial basis, rather than covering single crafts only, is favorable to a broader view of industrial problems. In the clothing industries, for example, both the Amalgamated Clothing Workers and the International Ladies' Garment Workers Union have long records of working with the employers for stabilization of competitive conditions and efficient operation in the interest of both employers and workers. Under the successive agreements in the hosiery industry the union and the employers have attempted to deal with a difficult competitive situation, while the union accepts responsibility as to efficiency of its members. In the bituminous coal industry a joint Mechanized Mining Commission has been established for the study of problems arising from mechanization. On some of the railroads, union-management cooperation resulted in active interest by the men in the increase of efficiency, and benefits to both men and management.<sup>42</sup> The Steel Workers Organizing Committee has published a handbook on *Production Problems*, in which it urges local programs of union-management cooperation, after the union is thoroughly established on a collective bargaining basis.

Signs of such a broad interest in the problems of the industry as a whole are apparent also in the economic research and education departments of a number of unions. Outstanding examples are the International Ladies' Garment Workers Union, the International Association of Machinists, and the International Brotherhood of Electrical Workers. Among the younger unions, the United Automobile Workers, the Steel Workers Organizing Committee, the United Rubber Workers and others have set up research departments. Recognition of the need for continuing study of the economics of the industry as a basis for policy making appears to be on an increase among the unions.

<sup>42</sup> For a recent discussion, see statement of Otto S. Beyer, in National Labor Relations Board, Division of Economic Research, Bulletin No. 1. *Governmental Protection of Labor's Right to Organize*, 1936, pp. 27-31.

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## APPENDIX, 15.—PRODUCTIVE ACTIVITY OF GOVERNMENT<sup>1</sup>

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Some appreciation of the extent, though not necessarily a measure of the importance, of the economic activity of government in the United States can be gained by reference to data showing how many people work under the administrative control of governmental agencies, what functions they perform, and the results of this activity in terms of income produced. Since statistical data relating to the economic activity of governmental agencies in this country are incomplete in many respects, only the main highlights can be shown in this analysis. If available data permitted, it would be interesting also to disclose quantitatively the range of goods and services produced by governmental agencies and the quantities of capital goods and land utilized, in addition to the manpower consumed, in producing these goods and services. Data on these points, however, are too fragmentary to provide a complete or detailed description of the productive activity of government.

### The Number of Public Employees

According to the Commission of Inquiry on Public Service Personnel, the United States comprises some 175,418 separate political jurisdictions: the Federal Government and the District of Columbia, the 48 States, 3,053 counties, 16,366 incorporated municipalities, 127,108 school districts, and 28,842 towns, townships, and other civil divisions.<sup>2</sup> The number of employees of each jurisdiction ranges from only elected officials and no appointive administrative employees in a few jurisdictions, or a single school teacher in many rural school districts, to many thousands in the larger cities and states, and over a million in the Federal service. No direct enumeration of all public employees in the United States has ever been made. However, estimates are available based upon (1) sample questionnaire returns from various jurisdictions, (2) division of the estimated or actual total of governmental salary and wage-payments, including payments to temporary and part-time employees, by the average annual compensation of permanent full-time employees, and (3) actual pay-roll records of some agencies. On these bases, the Division of Economic Research of the Bureau of Foreign and Domestic Commerce has made estimates of the total number of public employees, excluding employees on work-relief programs, for each year

during the period 1929 through 1936, and has broken down these estimates to show employment by main governmental jurisdiction for all except educational employees.

Table I presents these estimates by Federal, State, city, and county jurisdictions, adapted to include employees in public education, but excluding persons employed on emergency work-relief projects. This table shows that the largest number of government employees, exclusive of work-relief, are employed by municipalities. Since 1929, however, the number of municipal employees and the proportion of all nonrelief government employees which they represent, has declined, while Federal and State employment has increased. Whereas Federal nonrelief employees constituted 27.0 percent of all government employees in 1929, they amounted to 32.2 percent in 1936. If work-relief employees were included, the Federal employees would, of course, comprise a much greater proportion of the total. The total number of nonrelief government employees increased by 13.7 percent during these 7 years. The bulk of this increase came from 1933 to 1936.

In table II, the number of government employees, (excluding work relief) is compared to the total gainfully employed in the United States. The proportion represented by government employees was 7.1 percent in 1929 and 8.7 percent in 1936. The increase in the proportion of employees by government was greater than the absolute increase in government employment during these years owing to the decline in private employment. At the low point in total employment, 1932, government employees amounted to 9.2 percent of all gainfully employed persons. Charts II and XVII in the text have shown the relation of Government employment to employment in specific segments of the economy in 1935.<sup>3</sup>

An accounting of all government employment in the United States requires analysis of the work-relief employees of recent years as well as the persons engaged in performing what might be regarded as the ordinary functions of government.

During 1935 an average of approximately 2,540,700 different persons received some work-relief employment on the various works programs financed chiefly by the Federal Government and operated by various agencies of the Federal, State and local governments.

<sup>1</sup> Appendix 15 was prepared by James C. Nelson.

<sup>2</sup> *Better Government Personnel*, 1935, p. 87.

<sup>3</sup> See pp. 61 and 75.

The average number of persons employed by all governmental jurisdictions under the various work-relief programs in 1935 is shown in table III and is compared to the total employed in performing ordinary government functions. It is not possible to convert this figure for work-relief employment into the equivalent of full-time employment. The figure arrived at by adding the total of these employees to the total 3,442,800 full-time equivalent<sup>4</sup> employees estimated as engaged in performing the ordinary functions of government in 1935 gives only a rough estimate of the total number of persons employed in this year. On the basis of this estimate it appears that on the average nearly 6 million persons were employed in full-time or part-time work by government in 1935, of which 57.5 percent represented employment resulting from ordinary governmental functions and 42.5 percent work-relief employment. If the work-relief employees had been converted to full-time equivalents, the percentage representing employment arising from performing ordinary governmental functions would doubtless have been considerably higher, and the percentage represented by work relief lower. It was not possible to break down the volume of employment on the various work-relief programs to show the number of persons employed by each main governmental jurisdiction, as in the case of employment resulting from the ordinary activities of government.

#### Functional Distribution of Public Employees

The various governmental jurisdictions in the United States are engaged in performing a wide variety of functions, such as regulation of traffic; general law enforcement by the prosecuting attorneys, police, and courts; carrying the mails; the construction and maintenance of public roads and streets and the provision of harbor facilities and ship channels; the operation of public schools; the maintenance of an army and navy for the national defense; fire protection; the provision of facilities for recreation and parks; sewage disposal; and the regulation and promotion of industry and commerce.

Data are not available in a central source from which to build up a complete distribution of public employees by specific functions performed. However, the large majority of public service personnel (78 percent) is engaged in furnishing a few basic services. Fairly complete data regarding the number of employees engaged in producing this group of services are available and are shown in table IV for the year 1935.

Over one-third of the total, or 1,152,400 persons, were engaged in producing public educational services

in 1935. This number includes all educational personnel in the public schools, including administrative and operation employees, employees of school boards and State and county education departments, as well as teachers. It does not include the teaching staff of the United States Naval Academy at Annapolis, the United States Military Academy at West Point, or of the Coast Guard Academy at New London. These educational employees are treated as military employees by the Department of Commerce.

Approximately one-fifth, 647,300, were employed in the construction and maintenance of public roads, highways, and streets. The proportion of public employees engaged in performance of this function would doubtless have been higher if it had been possible to include all of the employees of the municipal governments engaged in maintaining and constructing city streets. An attempt was made to secure information relating to these employees outside of the emergency work-relief programs of the recent years and force-account employment on projects financed by Public Works Administration.<sup>5</sup> The estimate of 647,300 persons employed on public roads in 1935 includes a total of 1,100 employees engaged in city street construction on projects financed by the Public Works Administration. If to this total is added an estimated 740,100 persons employed by governmental agencies on a work-relief basis in 1935 to work upon public roads and streets, a total of 1,387,400 is derived as the aggregate number of persons engaged in constructing and maintaining the public highways in this year.<sup>6</sup> While these estimates are rough and do not convert employment to a full-time equivalent basis, it is clear that the construction and maintenance of public roads is one of the largest economic activities of government in the United States.

The military services ranked third among the various functions performed by government employees. An average of 268,700 persons were engaged in the Army and Navy during this year, or 7.8 percent of the total.<sup>7</sup> Included in this total are the active officers

<sup>4</sup> The Bureau of Public Roads has no data that could be used as a basis for making even the roughest guess.

<sup>5</sup> Work-relief road employees were estimated by multiplying the total number of persons employed in work-relief projects under the Federal Emergency Relief Administration each month during 1935 by the average ratio of highway, road, and street employees to the total found by this agency for the 4 weeks ending January 17, February 21, March 21, and April 18, 1935. Then, the average number of employees engaged in street and highway construction projects of the Works Progress Administration for each month during the months of July through December, 1935, was computed. The Works Progress Administration supplied data showing the man-hours worked on a force-account basis on highways, roads, and streets under its Works Program and total man-hours worked on all projects. The ratio of man-hours of highway work to all Works Progress Administration work each month was applied to total number of employees engaged in all projects to find the number employed on Works Progress Administration streets and highway projects. The average number employed on both programs was derived by adding the employees on the Works Progress Administration highway projects each month during the last half of 1935 to the Federal Emergency Relief Administration employees for the corresponding months and averaging all monthly figures for the year.

<sup>7</sup> An average of the 12 monthly figures reported by the War and Navy Departments to the Bureau of Labor Statistics, plus the average number of West Point cadets

<sup>4</sup> The Works Progress Administration reported that it would be very difficult to convert work-relief employment into full-time equivalent man-years, owing to the fact that there was no standard work month in the various communities. The length of time that each person worked was determined by dividing the maximum wage allowed by the average wage per hour paid by each community.

and men of the United States Navy, the United States Marines, and the Coast Guard; the commissioned and warrant officers, enlisted men, and the nurses of the regular army; the enlisted men of the Philippine Scouts; and the midshipmen of the Naval Academy and the Coast Guard Academy; and the Cadets in training at West Point. Persons retired from the service and the reserve officers of the Reserve Officers' Training Corps are not included in this total.

The Postal Service accounted for about the same number of employees as the Military Service in 1935. An average of 269,300 persons were engaged in distributing the mail in this period, of 7.6 percent of the total.

The four services of public education, construction and maintenance of public roads, national defense, and carrying the mails, accounted for over two-thirds of the entire public personnel in 1935. When the important services of police and fire protection are included with this group of basic services approximately three-fourths of the entire public personnel, excluding the work-relief employees, are accounted for. The remainder of the public employees are engaged in performing a wide range of services, including the provision of water supplies,<sup>8</sup> sewage disposal and parks, reclamation and conservation, and performing the legislative, executive, judicial, and regulatory functions of government.

It should be noted that work-relief employees are not included in the functional distribution given in table IV. However, a rough impression of the functions performed by the work-relief employees in 1935 can be obtained from the distribution of Federal Emergency Relief Administration work-relief employees in January 1935 and Works Progress Administration employees in December 1935. These are shown in table V. Federal Emergency Relief Administration employees are shown on the basis of number of persons employed. Works Progress Administration employees are shown on the basis of man-hours. In January 1935, Federal Emergency Relief Administration projects included 87 percent of work-relief employees. In December 1935, Works Progress Administration included 85 percent of work-relief employees.<sup>9</sup>

The Civilian Conservation Corps accounted for most of the remaining work-relief employees in 1935. Data showing the number of employees engaged or man-hours worked by type of function performed are not available for this agency. The Civilian Conservation workers are chiefly engaged in various types of activity relating to the national and State parks, national forests, wildlife preserves, and other public domain. These activities include building park roads,<sup>10</sup> trails, bridges, and utilities; flood-control, irrigation, and water conservation activity; erosion control, forest culture, and fire control.

## Income Produced by Government

In the absence of adequate data with which to appraise the capital goods and land used by government and the value of the product of government activity, estimates of the share of the total national income which is produced by government may be used to supplement data on government employment.

<sup>8</sup> About 75 percent of the water systems are municipally operated. Cf. Hartwell, Ronald P., "Water—A Growing Utility," *Magazine of Wall Street*, vol. 46, June 28, 1930, p. 398. In its report of December 1, 1934, p. 332, the National Resources Board stated that an analysis of 67,000,000 water customers shows that about 90 percent are served by public supply systems.

<sup>9</sup> The Works Progress Administration began its operation as of July 1, 1935. Over a period of some months it replaced the Federal Emergency Relief Administration program. In January and December the distribution of work-relief employment was as follows:

	Number of persons employed		Percent to total	
	January	December	January	December
Federal Emergency Relief Administration <sup>a</sup> .....	2,446,266	59,411	86.7	1.7
Works Progress Administration <sup>b</sup> .....		2,902,712		84.6
Civilian Conservation Corps <sup>c</sup> .....	369,160	498,674	13.1	13.6
Public Works Administration <sup>d</sup> .....	4,281	4,281	.2	.1
Total .....	2,819,707	3,454,478	100.0	100.0

<sup>a</sup> Source: *Statistical Summary of Emergency Relief Activities*, January 1933 through December 1935, Federal Emergency Relief Administration, table 8, p. 21, 22. The figures shown herein relate to the number of different cases receiving some emergency work relief earnings and not the average number of full-time equivalent employees on the Federal Emergency Relief Administration programs. A certain amount of duplication exists between the reports for emergency work relief programs and Works I program employment under the Works Progress Administration, because of the transfer of workers from the former programs to the latter. These duplications have not been subtracted from the Federal Emergency Relief Administration employment shown herein. The number of students receiving work relief employment under the Federal Emergency Relief Administration student-aid program is not included herein.

<sup>b</sup> Source: Special tabulations, Division of Research, Statistics, and Records, Works Progress Administration and Division of Construction and Public Employment, Bureau of Labor Statistics. The figures herein shown relate to the work programs operated by the Works Progress Administration and were compiled from actual records kept. These projects are planned and sponsored by the States and localities and financed by both Federal and State funds. However, except for a few technical and supervisory employees furnished by sponsors, all of the workers are carried on the Federal pay roll. The figures shown represent the number of different persons employed, not the average number of full-time equivalent man-years represented by the employment figures. The number of persons receiving work-relief employment under the National Youth Administration is not included herein. Persons employed on the Federal construction projects supervised by various Federal agencies, excluding the Bureau of Public Roads, but financed by the Works Progress Administration are included. They are estimated on the basis of the maximum number of employees reported in any one week during the month of the Bureau of Labor Statistics. Source: Special tabulation submitted by letter of Sept. 15, 1937, from Herman B. Byer, Division of Construction and Public Employment, Bureau of Labor Statistics.

<sup>c</sup> Source: Special tabulation, Division of Construction and Public Employment, Bureau of Labor Statistics.

<sup>d</sup> Source: Estimate by Public Works Administration on basis of reports from the cooperating agencies. Average number of persons employed on force account basis on projects financed by Public Works Administration for year on both Federal and non-Federal projects, exclusive of employment on streets and highways included in the figures shown for the public roads function.

<sup>10</sup> An impression of the road building activities of the Civilian Conservation Corps workers during the period April 1933 to April 1937, can be gained from the following tabulation showing the miles of roads and trails constructed or maintained in this period:

Type of job	Miles constructed	Miles maintained
Roads:		
Truck trails .....	80,828.9	243,877.9
Minor .....	1,180.9	22,234.6
Highways .....	140.4	9,586.8
Park roads .....	1,005.3	8.4
Trails:		
Foot .....	9,970.8	18,471.1
Horse .....	10,975.1	36,300.3

Source: Special tabulation by the Civilian Conservation Corps

Table VI shows the estimates by the United States Department of Commerce of the income produced by government annually during the period from 1929 through 1936, and the ratio of income produced by government to the total income produced for each year during this period. It will be noted that while total national income produced dropped from \$1 billions of dollars in 1929 to a low of 40 billions of dollars in 1932, income produced by government during this period remained very stable. As a result, the proportion of the national income produced by government increased from 8.1 percent in 1929 to 16.8 percent in 1932. Since 1932, the proportion produced by government has decreased, but it has remained well above the proportion of the earlier years, and amounted to nearly 15 percent in 1935 and 1936.

Although the above data on employment and income produced are sufficient to indicate that government must be regarded as one of the leading factors in the structure of the economy, they are only suggestive of the significance to the economy of government activity. Full understanding of government's role would require careful analysis of the governmental function of providing a framework for individual activity as well as of the activities of government as a direct producer and distributor of wealth. The effects of government controls in each industrial segment of the economy would have to be measured, and extensive data on governmental operations which result in direct production of goods and services in each industry would have to be assembled, before the role of government in the economic system could be fully described.

TABLE I.—*Number of employees in government service in the United States, excluding employees on work-relief programs, by main governmental jurisdiction, 1929-36*<sup>1</sup>

Jurisdiction	1929		1930		1931		1932		1933		1934		1935		1936	
	Number of employees <sup>2</sup>	Percent of total	Number of employees <sup>2</sup>	Percent of total	Number of employees <sup>2</sup>	Percent of total	Number of employees <sup>2</sup>	Percent of total	Number of employees <sup>2</sup>	Percent of total	Number of employees <sup>2</sup>	Percent of total	Number of employees <sup>2</sup>	Percent of total	Number of employees <sup>2</sup>	Percent of total
Federal.....	862,000	27.0	873,000	26.3	880,400	26.1	864,000	26.4	855,900	26.7	941,500	28.5	1,049,900	30.5	1,167,000	32.2
State.....	301,600	9.5	319,400	9.6	336,600	10.0	339,400	10.4	343,800	10.7	356,800	10.8	377,700	11.0	389,900	10.8
City.....	1,296,500	40.7	1,355,000	40.9	1,359,900	40.3	1,303,900	39.8	1,252,800	39.2	1,253,600	38.0	1,258,800	36.5	1,291,300	35.6
County, township, and minor civil divisions.....	729,600	22.8	769,100	23.2	796,800	23.6	764,100	23.4	747,600	23.4	750,900	22.7	756,400	22.0	777,000	21.4
Total.....	3,189,100	100.0	3,316,500	100.0	3,373,700	100.0	3,271,400	100.0	3,200,100	100.0	3,302,800	100.0	3,442,800	100.0	3,625,200	100.0

<sup>1</sup> Source: Adapted from special tabulations by the National Income Section of the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce. Since the Department of Commerce tabulation does not distribute employees in public education by governmental division, except in the case of the Federal Government, it was necessary to estimate the number of this class of employees that should be distributed to State, city, and county jurisdictions. A tabulation of the number of educational employees in the United States, excluding operation employees, maintenance employees, bus drivers, full-time health officers, and local attendance officers, reported to the Office of Education in 1934 shows that 4.9 percent of these employees are employed by State governments, 52.93 percent by city governments, and 42.17 percent by county and other local governments. The total number of employees in public education shown by the Department of Commerce for each year during the period 1929-36 was then multiplied by these ratios to find the number of employees in public education to be distributed to each governmental jurisdiction, other than Federal.

<sup>2</sup> Wherever available data permitted, the number of public employees reported to the Department of Commerce were converted to a full time equivalent basis.

<sup>3</sup> Cities are defined by the Department of Commerce as all incorporated places. This definition has been followed herein.

TABLE II.—*Comparison of number of persons employed by government, excluding employees on work-relief programs, to total number employed by all industrial divisions in the United States, 1929-36*<sup>1</sup>

[In thousands]

Class of employment	1929		1930		1931		1932		1933		1934		1935		1936	
	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total
All industrial divisions, excluding work-relief employees.....	44,648	100.0	42,601	100.0	39,180	100.0	35,690	100.0	35,902	100.0	38,355	100.0	39,426	100.0	41,487	100.0
Government, excluding work-relief employees.....	3,189	7.1	3,316	7.8	3,374	8.6	3,271	9.2	3,200	8.9	3,303	8.6	3,443	8.7	3,625	8.7

<sup>1</sup> Adapted from special tabulations submitted by the National Income Section of the Division of Economic Research, Bureau of Foreign and Domestic Commerce, Department of Commerce.



TABLE III.—Number of employees in government service in the United States, including employees on work-relief programs, in the year 1935<sup>1</sup>

Class of employment and jurisdiction	Number of persons employed	Percent of total
Ordinary governmental functions: <sup>2</sup>		
Federal.....	1,049,900	17.5
State.....	377,700	6.3
City.....	1,258,800	21.1
County, township, and minor civil divisions.....	758,400	12.6
Emergency Work Relief programs: <sup>3</sup>	2,540,700	42.5
Grand total number of persons employed by Government.....	5,983,500	100.0

<sup>1</sup> Wherever the data permitted, the number of public employees shown has been converted to a calendar year basis.

<sup>2</sup> Full-time equivalents. See table 1.

<sup>3</sup> Not converted to full-time equivalents. Includes the number of persons employed on works programs projects operated directly by the Works Progress Administration, on work-relief projects of Federal agencies financed by the Works Progress Administration, on work-relief projects financed and supervised by the Federal Emergency Relief Administration, on projects of the Civilian Conservation Corps, and on Federal and non-Federal projects, other than streets and highways, financed by the Public Works Administration. Where the projects involved construction in which some of the work was done by contractors, as in the case of the Public Works Administration projects especially, only the force-account work of governmental agencies has been included. Accordingly, the number of persons employed shown herein relates to persons on governmental pay rolls, not the entire volume of employment deriving from expenditures of governmental funds. The source of the data are as follows: For the figures relating to the Works Program of the Works Progress Administration and the Federal Emergency Relief Administration projects, special tabulations by the Works Progress Administration based upon pay-roll records and reports from participating agencies; for the data relating to work-relief projects of Federal agencies financed by Works Progress Administration, a special Bureau of Labor Statistics tabulation of estimated force-account employment based upon monthly reports of employment received direct from the Federal agency supervising the projects; for the Civilian Conservation Corps projects a special Bureau of Labor Statistics tabulation showing revised monthly employment in the calendar year 1935; for the projects financed by Public Works Administration, an estimate by Public Works Administration of the force-account employment based upon reports from participating agencies.

TABLE IV.—Number of employees in government service in the United States, excluding employees on work relief programs, by major economic functions performed in the year 1935<sup>1</sup>

Functional class	Number of persons employed	Percent of total employees
Education: <sup>2</sup>	1,152,400	33.4
Public roads: <sup>3</sup>	647,300	18.8
Military service: <sup>4</sup>	298,700	7.8
Post office: <sup>5</sup>	290,300	7.6
Police department: <sup>6</sup>	178,300	5.2
Municipal fire department: <sup>7</sup>	79,400	2.3
Municipal power plant: <sup>8</sup>	15,000	.6
Municipal street railways: <sup>9</sup>	9,900	.3
All other municipal public utilities: <sup>10</sup>	63,600	1.8
All other functions: <sup>11</sup>	763,900	22.2
Total all functions.....	3,442,800	100.0

<sup>1</sup> Wherever available data permitted, the figures relating to the number of public employees shown have been converted to a full-time equivalent basis and related to the calendar year 1935.

TABLE VI.—Comparison of the income produced by government, including work-relief wages, with the income produced by all industrial divisions in the United States, 1929-36<sup>1</sup>

Industrial division	1929		1930		1931		1932		1933		1934		1935		1936	
	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total
All industrial divisions, including work-relief wages: <sup>2</sup>	81,128	100.0	68,302	100.0	53,822	100.0	40,014	100.0	42,256	100.0	50,052	100.0	55,186	100.0	63,466	100.0
Government, including work-relief wages: <sup>3</sup>	6,540	8.1	6,720	9.8	6,847	12.7	6,727	16.8	6,907	16.3	7,949	15.9	8,247	14.9	9,785	15.4

<sup>1</sup> Adapted from special tabulations by the National Economic Section of the Division of Economic Research, Bureau of Foreign and Domestic Commerce. See *National Income in the United States, 1929-35*, for explanation of the method used by the Department of Commerce in making these estimates.

<sup>2</sup> Include the following amounts of work-relief wages in the last 4 of these years: \$611,000,000 in 1933; \$1,395,000,000 in 1934; \$1,273,000,000 in 1935; and \$2,028,000,000 in 1936.

<sup>3</sup> Source: Special tabulation by the National Economic Section of the Bureau of Foreign and Domestic Commerce.

<sup>4</sup> Source: Estimates by the Bureau of Public Roads of the man-months of force account work on State roads, during the fiscal year 1935, based upon regular reports of the State highway departments and of the man-months of force-account work on local rural roads based upon an estimated expenditure of \$28,000,000 for local rural roads during the fiscal year 1934—the last year for which data are available—and a factor of 50 percent of expenditures for these roads for labor and 30 percent for materials and supervision; estimates by Projects Division of the Public Works Administration of the force-account employment resulting from road construction and maintenance financed by the Public Works Administration during the fiscal year ending June 30, 1935. Except for 1,065 man-years financed by the Public Works Administration, force-account employment on city streets is not included.

<sup>5</sup> Source: Average for year 1935 based on monthly reports of the Civil Service Commission.

<sup>6</sup> Includes employees for the fiscal year ending June 30, 1935, of such agencies of the Federal Government as the Federal Bureau of Investigation, the Post Office Inspection Service, the Immigration Border Control of the Department of Labor, and in the Treasury Department the Secret Service Division, the Intelligence Unit and Alcohol Tax Unit of the Bureau of Internal Revenue, the Bureau of Narcotics, and the Customs Agency Service of the Bureau of Customs; the employees of the State police and highway patrol departments as of June 1, 1935; an estimate for the year 1935 of the number of county sheriffs based upon figures of the *Census of Occupations* for 1910, 1920, and 1930; the estimate of the Department of Commerce of the number of city police employees listed to include cities with population below 2,500; the employees of the Federal and State prisons as shown by the census report, *Prisoners in State and Federal Prisons and Reformatories*, for the calendar year 1935; and the figures shown in the *Census of Occupations* for public guards, watchmen, and doorkeepers for 1930 reduced by the number of keepers and guards in Federal and State prisons in 1935. The figures for the Federal agencies were supplied by them direct. The American Association of Motor Vehicle Administrators supplied the figures as to State police.

<sup>7</sup> Source: *Statistical Abstract for 1936*, table 406, p. 352. The data given are the census figures for 1932—the last year that a census of the electrical industry was taken.

<sup>8</sup> Source: *Census of Electric and Street Railways and Motor Bus Operations of Affiliated and Successors, 1932*. The data shown are for the year 1932, the latest year available.

<sup>9</sup> Source: The Commission of Inquiry of Public Service Personnel in its publication, *Better Government Personnel*, estimated on the basis of a sample taken by the Department of Commerce by the questionnaire method that there were 92,500 employees in municipal public utilities as of June 30, 1932. The figure shown above is derived by subtracting the employees of the municipal power plants and the street railways as shown by the Bureau of the Census for 1932.

TABLE V.—Percent distribution by type of project of persons on work-relief projects—January and December 1935

Type of project	Percent distribution Federal Emergency Relief Administration January 1935 <sup>1</sup> (number persons working)	Percent distribution Works Progress Administration December 1935 <sup>2</sup> (man-hours)
Highways, roads, and streets.....	35.0	41.8
Public buildings (including housing).....	9.3	8.0
Recreational facilities.....	5.3	12.6
Airports and other transportation.....	10.0	1.7
Sewer systems and other public utilities.....	7.2	8.3
Sanitation and health projects.....	14.0	4.1
Conservation.....	5.3	5.7
Education.....	5.5	1.1
Professional and clerical.....	3.5	4.1
Goods.....	14.1	10.6
Miscellaneous.....	1.1	2.0
Total.....	100.0	100.0

<sup>1</sup> The distribution is based on a tabulation of pay rolls covering 95 percent of the total number of both relief and nonrelief persons working during the week ending Jan. 17, 1935, or 1,774,210 persons out of a total of 1,827,589.

<sup>2</sup> Source: Special tabulation provided by Works Progress Administration.

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## APPENDIX 16.—MAPS OF INDUSTRIAL LOCATION, 1935<sup>1</sup>

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The maps in this appendix supplement the maps which are contained in chapter IV. Those showing the location of manufacturing plants in 1935 are derived from the *1935 Census of Manufactures* and are constructed in the same manner as the ones in chapter IV, a dot for each establishment regardless of size. It would be desirable to map the location of each industry in terms of numbers employed instead of in terms of plant location. The Bureau of the Census, however, is unable to release the necessary material, for all returns made to it by individuals are strictly confidential, and the Bureau is prohibited by law from disclosing individual data. The maps are arranged in groups of related industries to show the flow of products through the manufacturing processes. All manufacturing industries employing 25,000 or more persons in 1935 are shown either in chapter IV or in this appendix, together with several smaller industries related to the larger ones. The text and appendix maps combined represent 80.5 percent of all persons engaged in manufacturing.

The maps of agricultural products, in the text and in this appendix, have been supplied by the Bureau of Agricultural Economics, United States Department of Agriculture. They cover the main crops and livestock and include 83.5 percent of all persons engaged in agriculture. In addition, 74 percent of the miners are represented by the maps of coal, iron ore, and petroleum.

*Agricultural Products.*—Maps A-1, A-2, and A-4 show the distribution of the major feed and forage crops, in addition to corn (ch. IV, map 14). Although some corn, oats, and barley reach the consumer directly, these crops for the most part are the first step in the production of meat and dairy products, or the second step where grass fed cattle are shipped from grazing areas<sup>2</sup> to feeding centers for fattening. The second step is shown in map A-3, poultry, and in the maps of livestock, A-5, A-7, A-9, A-10. The production of beef and swine is closely associated geographically with the production of feed crops while sheep are more generally to be found in the grazing areas. Poultry are widely distributed in all types of agricultural areas where they constitute a supplementary crop and in the vicinity of urban centers and convenient markets.

Maps A-5 to A-8 show two distinct patterns of location in two branches of the meat and dairy industries. The production of beef cattle is closely associated geographically with the location of grazing areas and the production of corn for fattening. The meat packing industry, shown in map A-6, consists of the large packing centers of the meat raising areas, Chicago, St. Louis, Kansas City, Omaha, and St. Paul, the smaller packing houses adjacent to urban population centers, and a scattering of local abattoirs, slaughtering locally raised livestock largely for local consumption.

The distribution of dairy cows shown in map A-7 differs noticeably from the distribution of beef cattle. Whereas dairy cattle are heavily localized in the Wisconsin-Minnesota areas north of the beef cattle center, they are absent from the western range and are very plentiful in the northeastern section near the centers of urban population. The dairy products industry contains two parts, fluid milk, and butter and other products. The bottling and distribution of fluid milk follows closely the pattern of urban consumer distribution, and is not here shown. Butter, shown in map A-8, is clearly associated with the raw material. Its concentration follows the distribution of dairy cows except for the dairy cattle in the vicinities of the northeastern cities where almost the entire product goes into fluid milk.

From the packing houses a part of the product goes into a further stage of fabrication, namely, leather. The distribution of the leather industry, map A-11, is largely unrelated to the location of the major packing centers. Although some leather manufacture is carried on in the Chicago area, this industry is mainly associated with the next stage of fabrication into boots and shoes and other leather products. The boot and shoe industry, shown on map A-12, is an industry localized in a series of centers. Originally almost entirely a New England industry it has developed centers in New York State, the St. Louis area, southern Ohio, eastern Pennsylvania, and Illinois.

The distribution of fruits and vegetables raised for market is shown in maps A-13 and A-14. A substantial proportion of these products reaches the consumer in a canned rather than fresh state. The fruit and vegetable canning industry shown in map A-15

<sup>1</sup> Appendix 16 was prepared by Caroline F. Ware and Grace W. Knott.

<sup>2</sup> See ch. III, map 4.

is clearly attached to the fruit and vegetable raising areas. Serving the canning industry is the manufacture of tin cans which, because of their bulk, tend to be fabricated in the vicinity of the point where they are used. Map A-16 shows the tin can industry in most, though not all, centers of canning. This map does not show tin cans alone, for other types of containers than tin cans and other tinware are included.

These series of maps, A-1 to A-16, together with maps 13-16 in chapter IV, show the growing and processing of principal foods. With the exception of fish, they have included the main foods produced in the United States and, with the exception of liquor manufacture, sugar processing, condensed milk, cheese, ice cream, prepared cereals, and some miscellaneous food preparations, all the commercial food manufacturing activity of any substantial volume.

Maps A-17 to A-20 show tobacco and its products, together with fertilizer which is extensively used in tobacco production. The latter, shown in map A-17, is also used in the production of truck, potatoes, and cotton, and in mixed farming, and its distribution reflects these flows as well as that to tobacco culture. Tobacco growing and the manufacture of cigarettes are highly localized and closely associated. Cigars, however, follow a very different pattern, for cigar manufacture is in large measure still an unmechanized industry located in urban centers.

*Textiles.*—Maps A-21 to A-28 confirm the evidence of the cotton textile maps in chapter IV as to the footloose character of textile industries. The location of woolen manufacture in the northeastern industrial areas, especially New England, bears slight relation to the location of resources. The manufacture of silk is highly localized on the eastern seaboard although the raw silk is imported on the west coast. Rayon is made in scattered plants. Rayon products are clearly bunched in the industrial areas. The latter frequently owe their location to historical factors, for in many instances the making of rayon cloth has come into plants originally built for the manufacture of cotton but abandoned for the latter purpose when the cotton industry migrated from New England to the southern piedmont. Most types of textiles must be dyed and finished before being made into garments. Map A-22 shows the location of dyeing and finishing plants adjacent to the centers of production of the various types of textiles. In addition, a scattering of finishing plants is to be found outside of the main areas of textile production and closer to the next stage of fabrication—the clothing manufacture.

Yarns of all types, in addition to being woven into textiles and made into garments, are knit into stockings, jerseys, sweaters, etc. The distribution of knit goods, map A-24, follows roughly that of the cotton

and silk industries with a combination of a northern center and a southern center. The northern center for the cotton textile industry is in New England whereas that of the knit-goods industry is in the Philadelphia area. The southern location of knit goods is less concentrated in North Carolina and somewhat more concentrated in eastern Tennessee. In the latter respect it reflects a later migration from north to south reaching the piedmont area after the latter had become an industrial center and moving into the eastern Tennessee section which had been relatively undeveloped industrially.

*Iron and steel.*—Maps A-29 to A-40 are further illustrations of the distribution of later stages of steel fabrication on the line of flow from resources to consumers and of the concentration in the northeastern industrial area, especially in the Great Lakes region, of industries manufacturing steel products.

*Forest products.*—For the most part, the fabrication of forest products is carried on in relatively small scale establishments whose distribution clearly reflects the line of flow. The production of lumber and timber products indicated on map A-41 shows a wide distribution of this activity wherever timber resources are to be found. The impression created by this map, however, needs to be corrected by consideration of the numbers employed and the actual amount of timber produced in the respective localities. Although the northeastern and the north Michigan and Wisconsin areas show a large number of establishments, they represent a very slight proportion of the employment or the product. The widely distributed lumbering activity shown in the South is somewhat more extensive in terms of the volume of employment than that reflected in the Pacific Northwest. In terms of employment, the Southern industry employed approximately 43 percent and the west coast 30 percent as against 5.5 percent in Michigan and Wisconsin and 2.8 percent in New England and New York. In terms of product the west coast produced 40.5 percent, the South 37.6 percent, while the Michigan-Wisconsin area produced only 3.6 percent and New England and New York 2.8 percent.

Since lumber is one of the products which loses most bulk in its first stages of fabrication, it is natural to find the lumber mills located close to the lumber resource. The next stage, planing mills, map A-42, is found to some extent in the vicinity of lumber mills but more generally in proximity to the two main uses of lumber, the industries using wood products and particularly the construction industry located in centers of population. A satisfactory basis for mapping the construction industry was not available. This series for forest products is, therefore, very incomplete, by reason of the omission of the main lumber-using industry.

Whereas planing mills, insofar as they are located at a distance from the resources and from the first stage of fabrication, are primarily located with reference to the construction industry, the fabrication of furniture follows a pattern of its own. Map A-43 shows this pattern. The industry here mapped is in part two industries, one using wood, the other metal, but since wood furniture comprises more than three-quarters of the total volume, the main characteristics shown in the map are determined by this branch of the industry. It is scattered extensively through the industrial States of Illinois, Indiana, and Ohio. More recently a new center has been developed in the southern piedmont, until at present North Carolina is second in the number of persons employed in the industry. The plants scattered through the South, Middle West, and New England largely represent small enterprises manufacturing for a local custom market.

The most bulky wood products and those which are therefore fabricated close to their ultimate use are wooden boxes. Their manufacture shown in map A-44 reflects the combination of agricultural demand for boxes for shipping of fruit, vegetables, etc., and the demands of small scale industries such as that which is represented in the New England area. Of the total employment in the industry nearly a quarter is accounted for by the three fruit shipping States of California, Florida, and Georgia.

Maps A-45 to A-48 supplement chapter IV, maps 33-36, pulp, paper, and printing, with industries that are auxiliary to printing and publishing and with a still later stage of paper fabrication, one in which scrap paper constitutes a substantial part of the raw material.

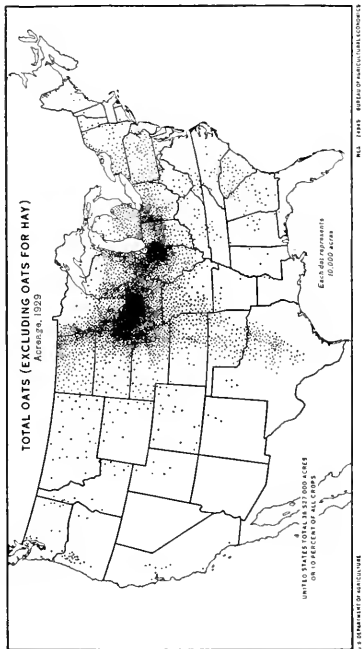
*Petroleum.*—Production, transportation, and refining

of petroleum are shown in maps A-49 to A-52. Refining largely follows the location of wells, but is also located in New Jersey and eastern Pennsylvania near centers of population. The direction of oil and gasoline trunk pipe lines clearly shows the flow from production centers to centers of consumption.

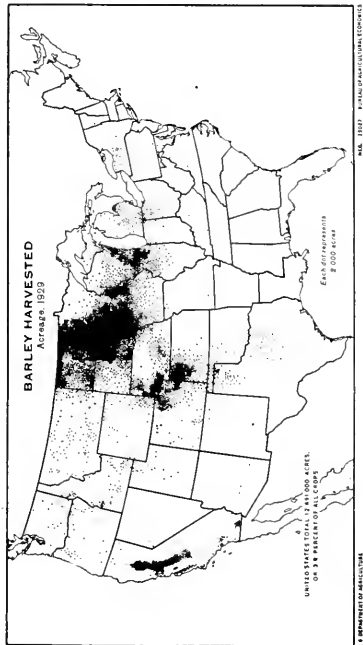
*Other natural resource industries.*—Maps A-53 to A-56 add other natural resource industries. Clay and stone products are typical of bulky and widely distributed resources fabricated locally for local or regional use. The glass industry, however, shows a high degree of localization, even though the raw material is fully as widely scattered as are clay and stone. Here a second resource, natural gas, which is extensively used in glass manufacture, contributes to the location of the industry.

*Miscellaneous industries.*—The remaining maps show industries which are typical of activity carried on in the industrial area. In no case is the industry closely attached to a localized resource. In the case of rubber and confectionery the raw materials are wholly or largely imported. Industries such as radio apparatus, refrigerators, and aircraft involve a high degree of fabrication of a wide variety of materials. Whereas these industries together account for only a small proportion of the employment in the industrial areas they constitute a representative sample of the type of industry which is footloose and tends to settle in industrialized areas. Where any particular degree of concentration in these products is shown as in the case of watches and rubber tires, for example, such concentration is largely a matter of historical accident followed by the investment of capital and the development of a skilled labor force. The last four maps, A-69 to A-72, make up a miscellaneous group.

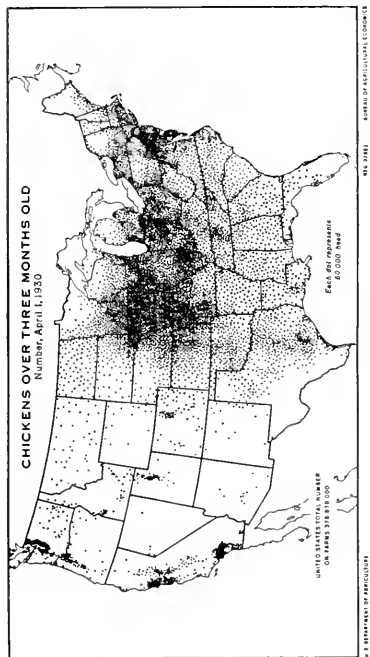
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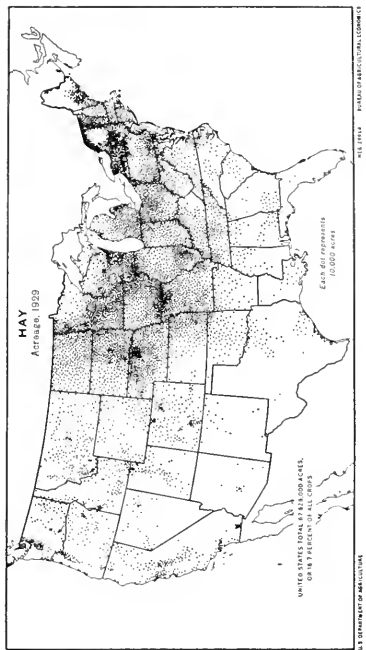
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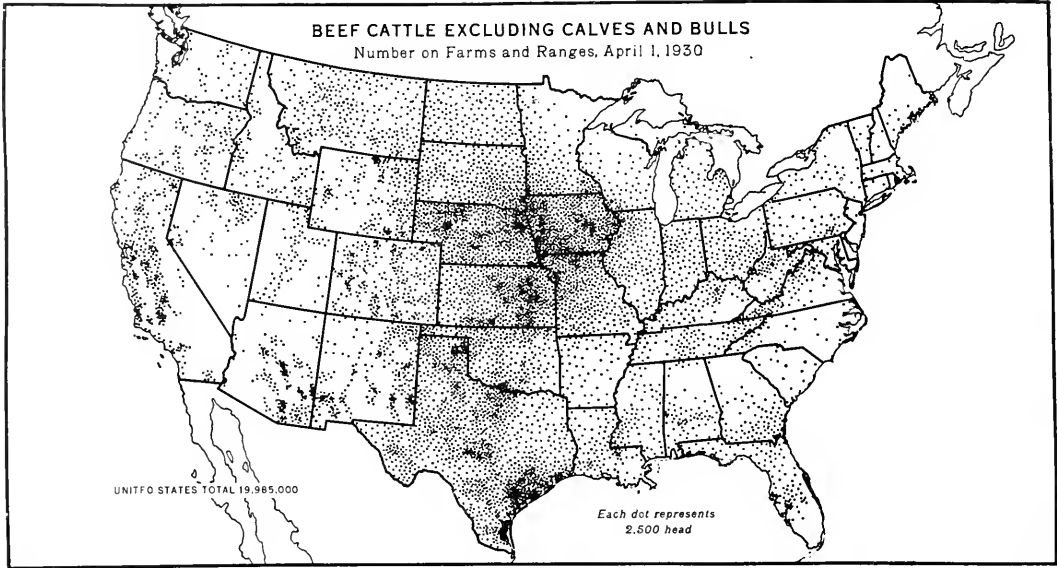
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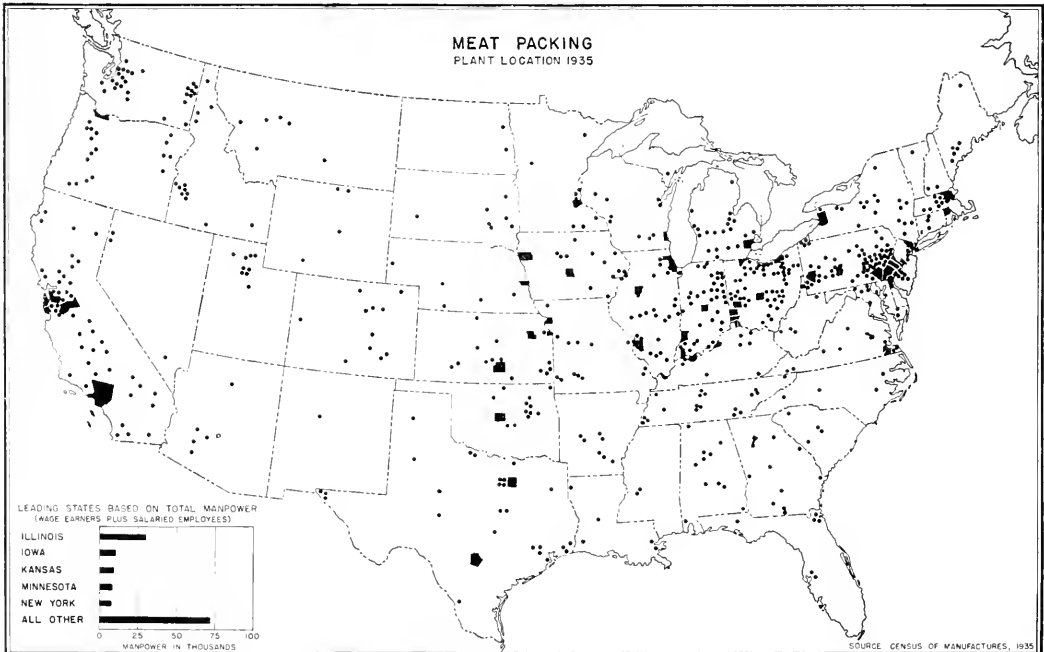
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A-5



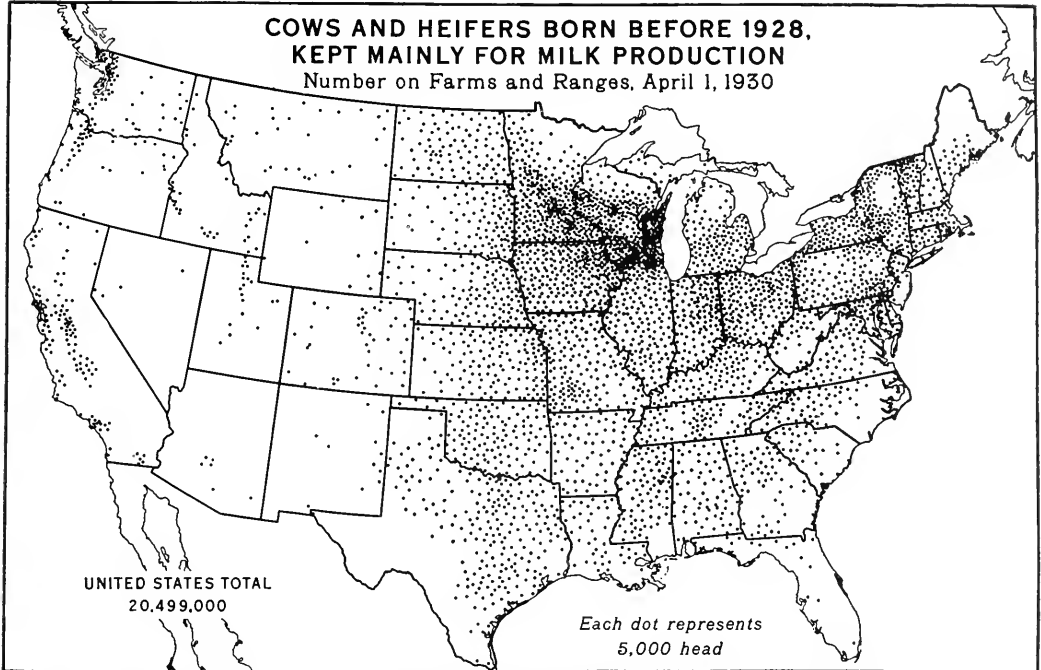
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Retail Slaughter not included

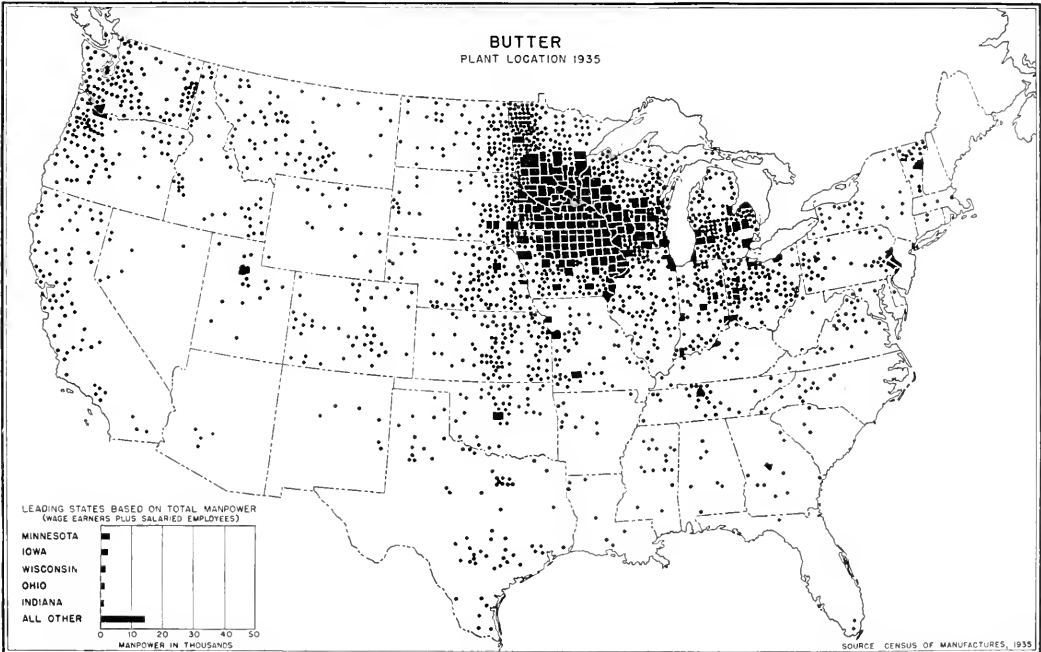
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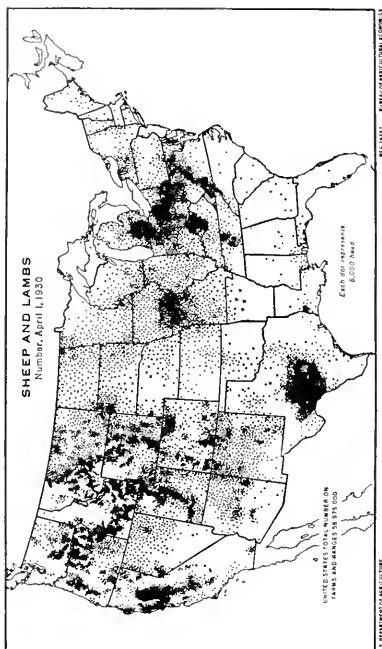
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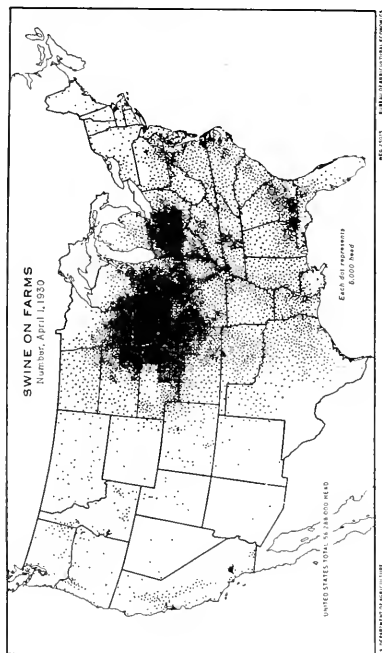


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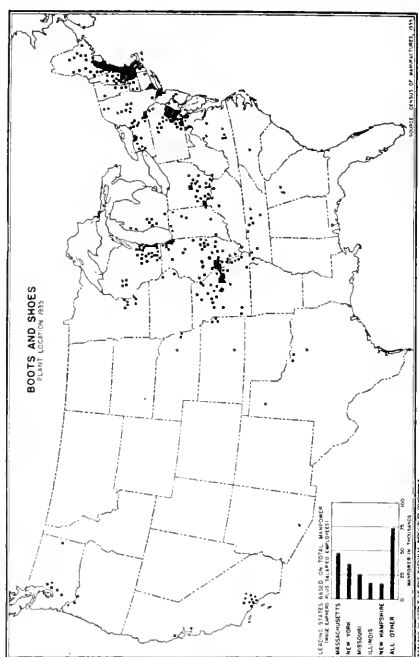
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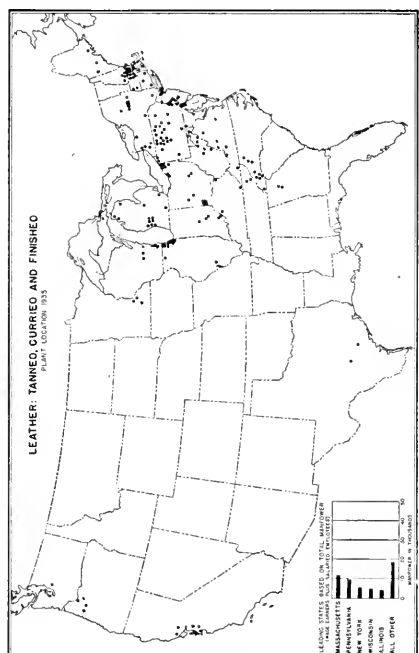
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A-12

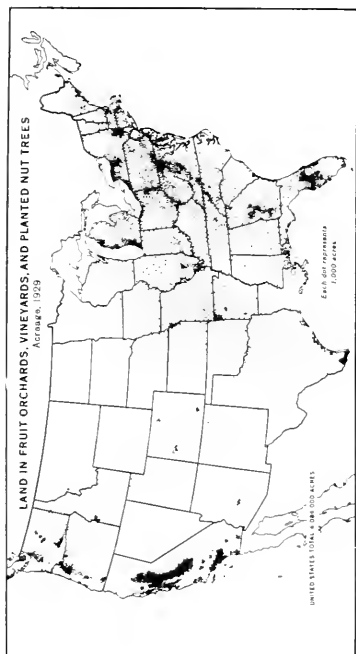


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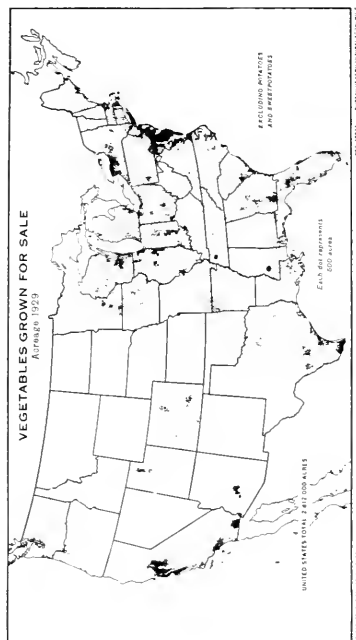




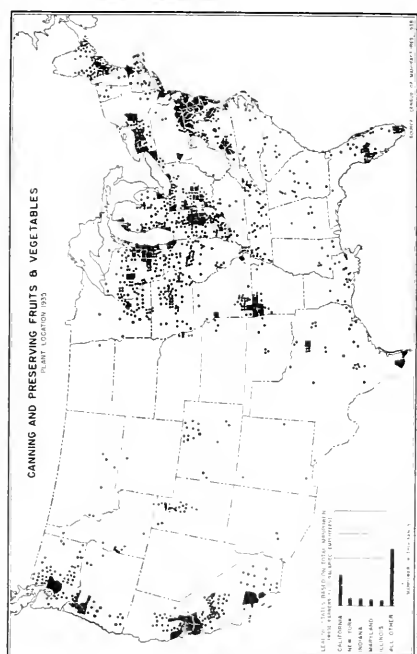
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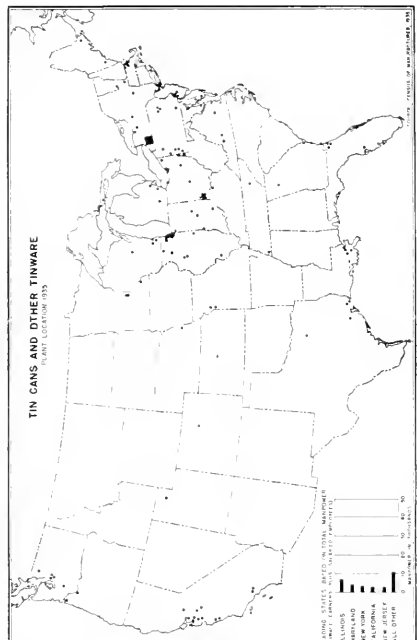
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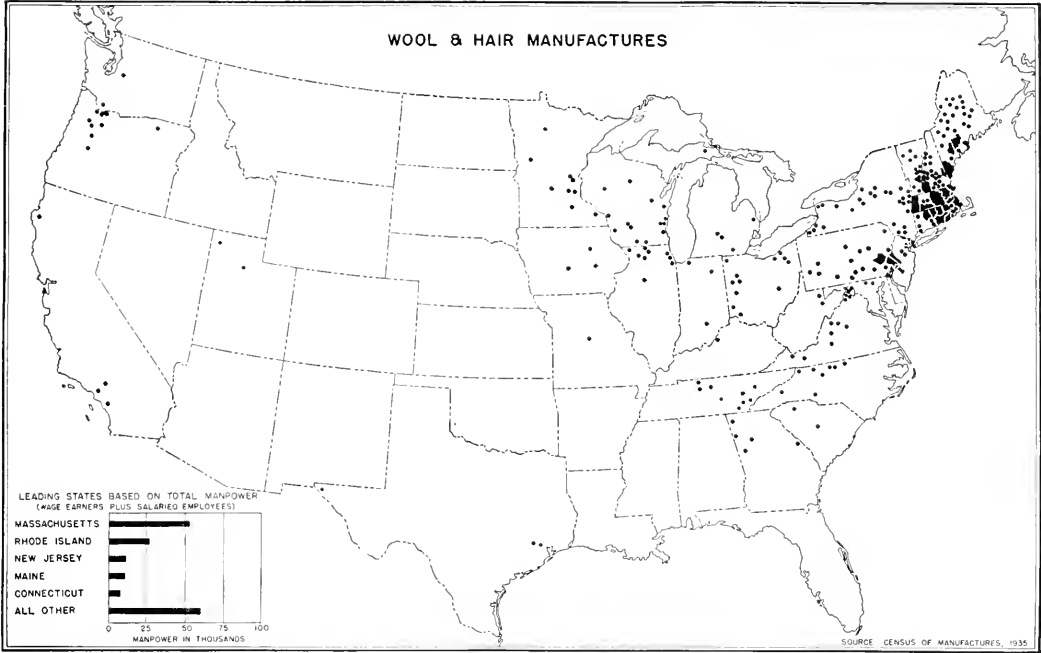
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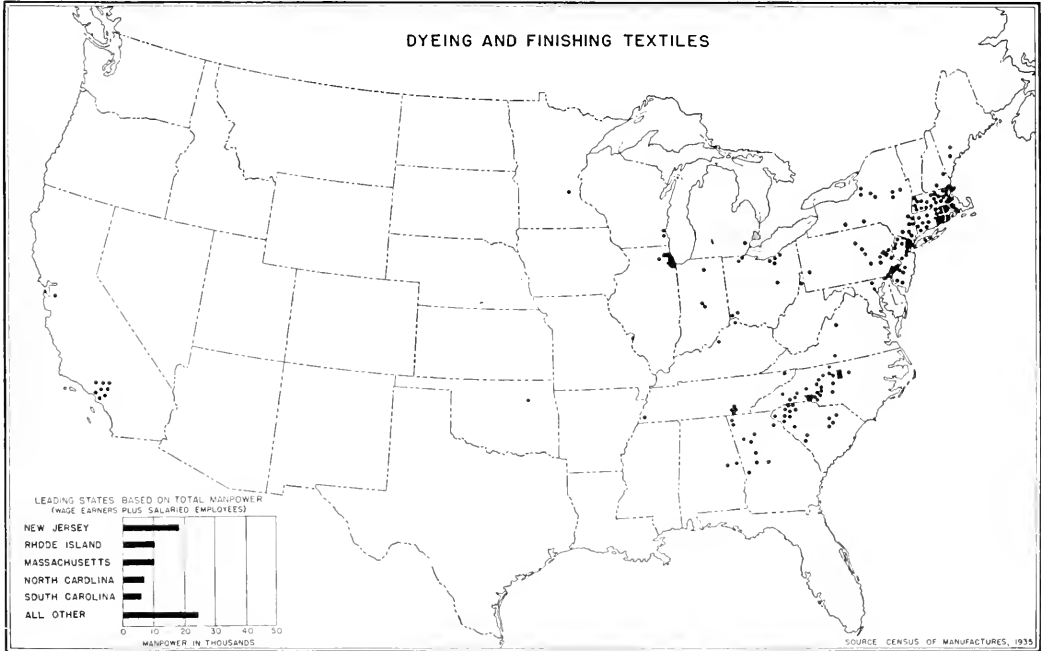
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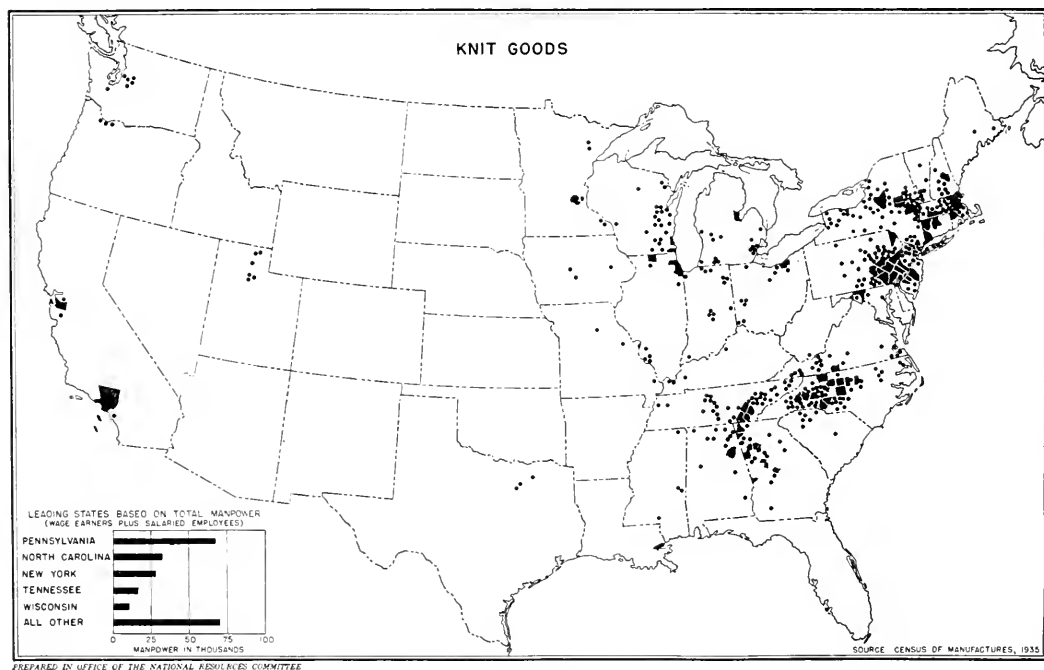
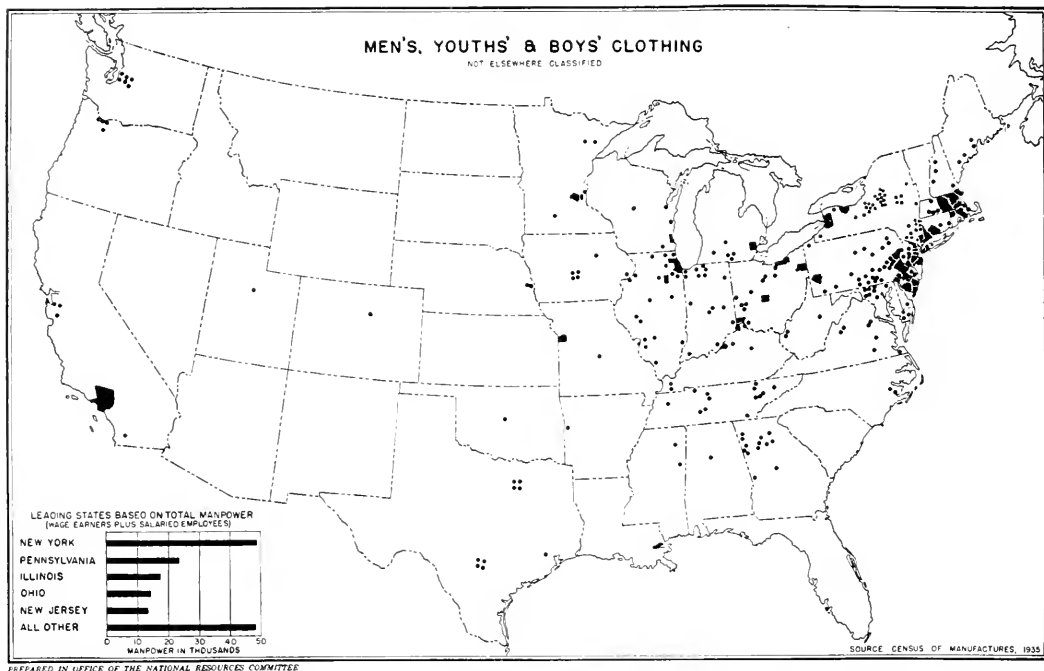




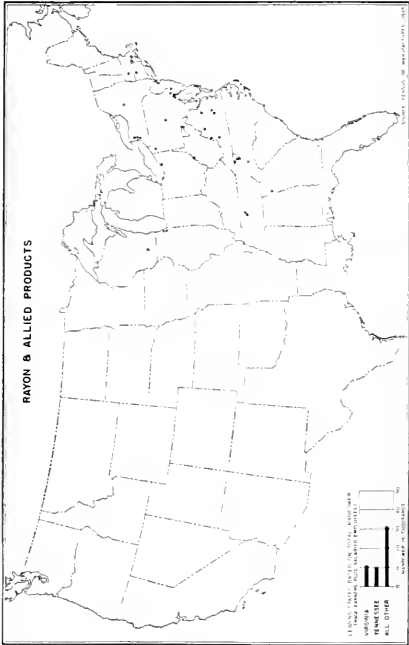
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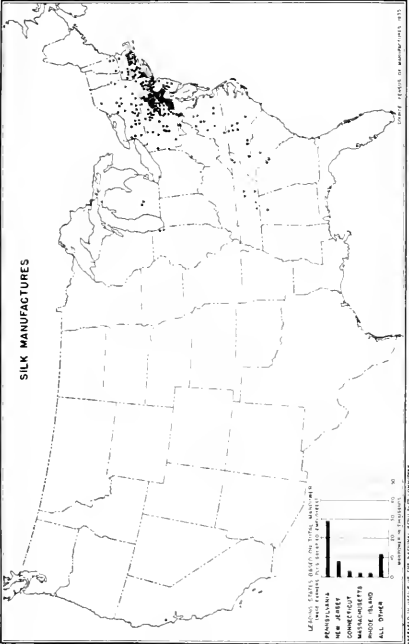
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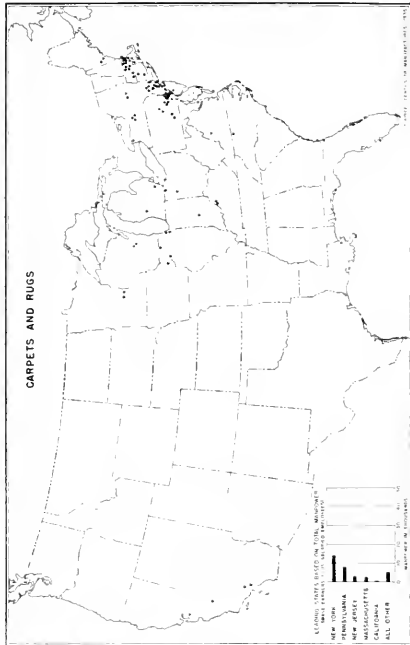
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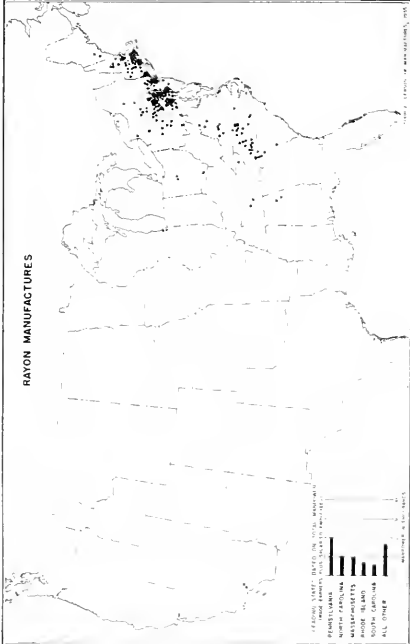
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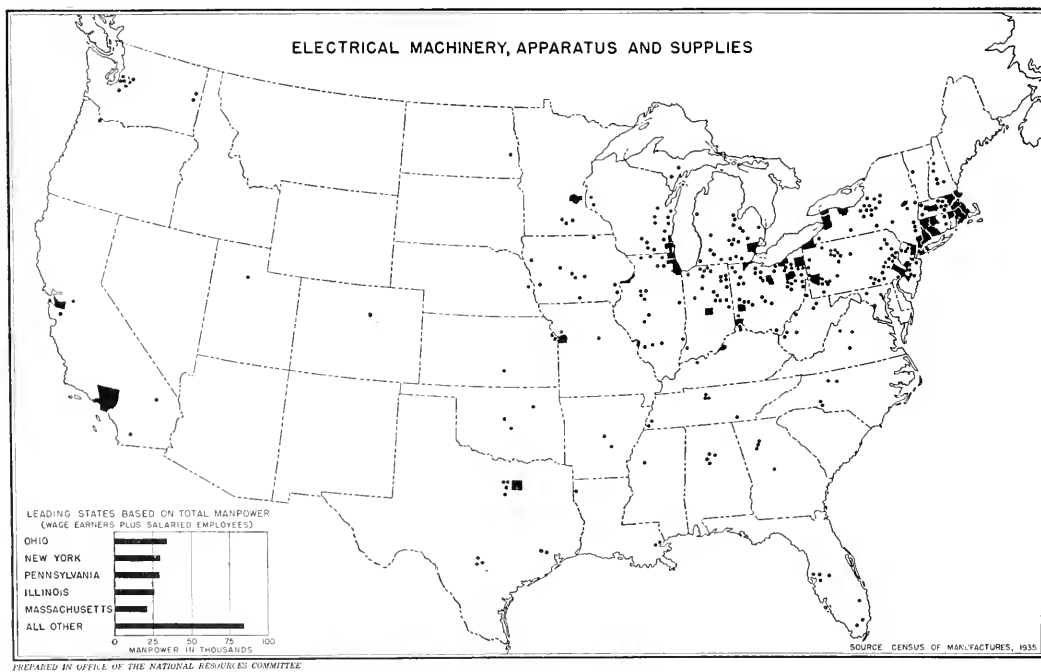
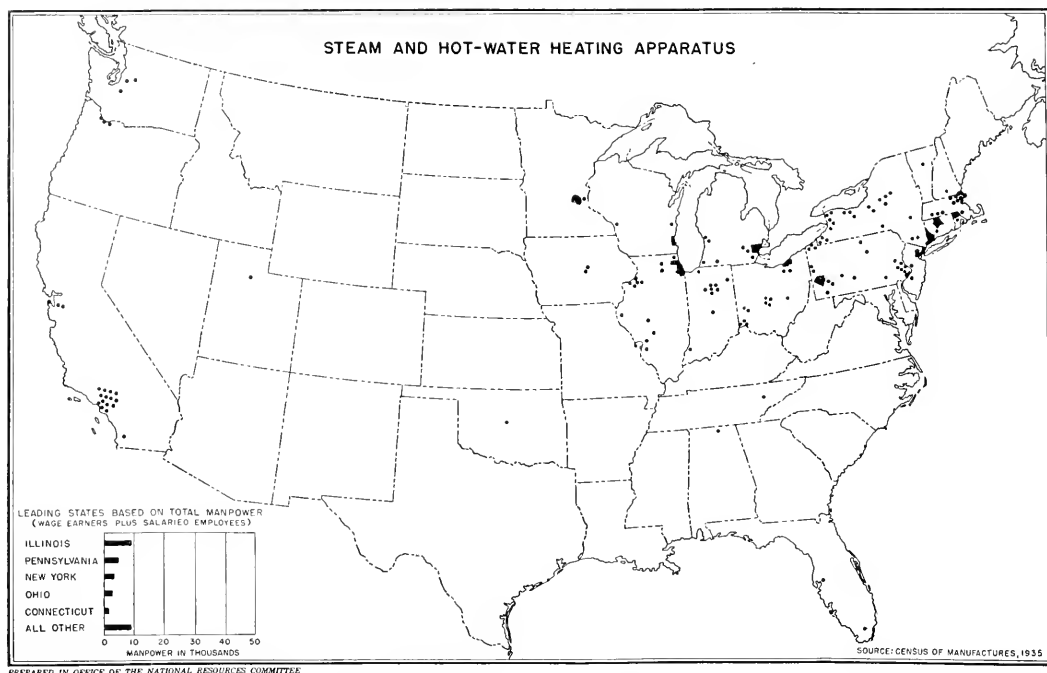
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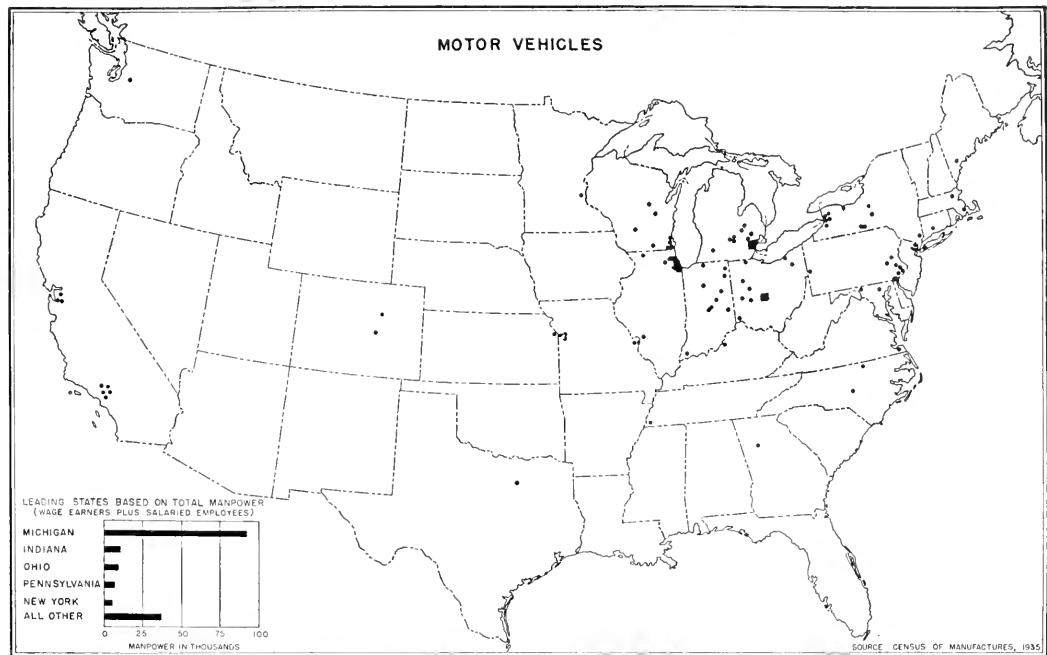


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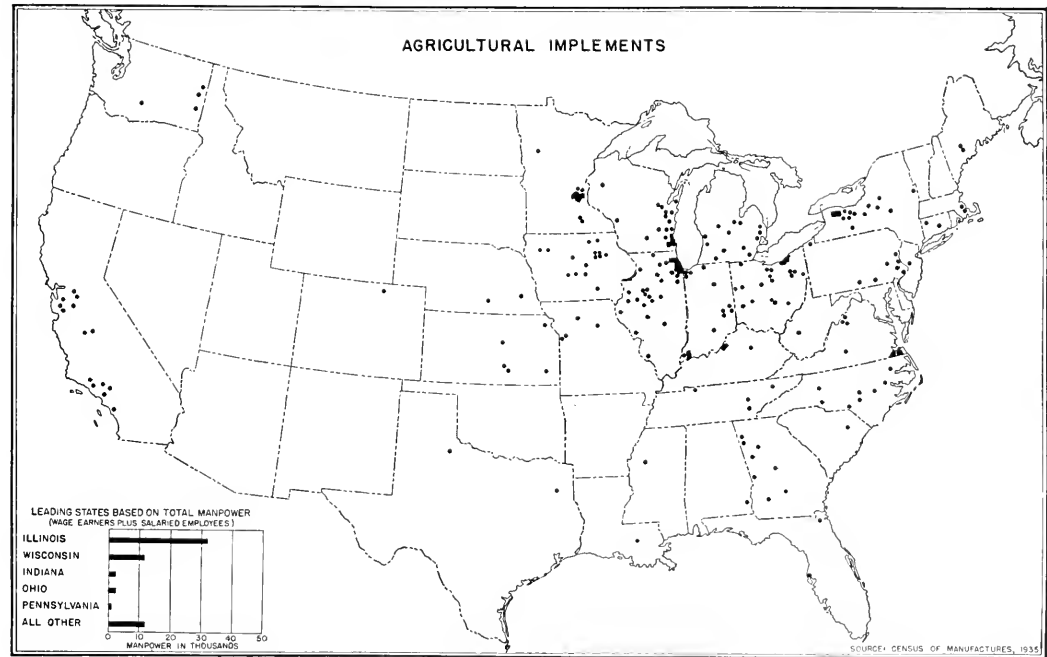


Plant Location 1935





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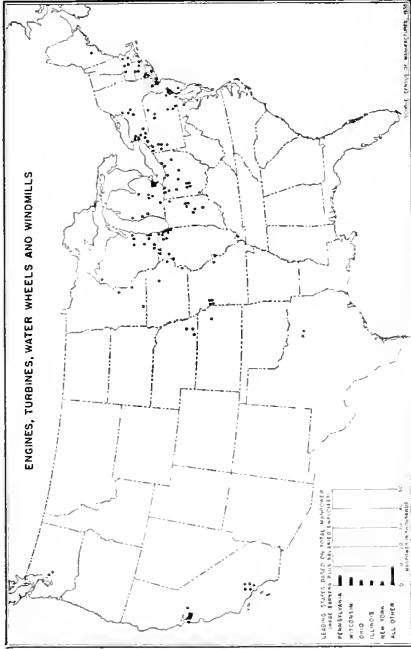


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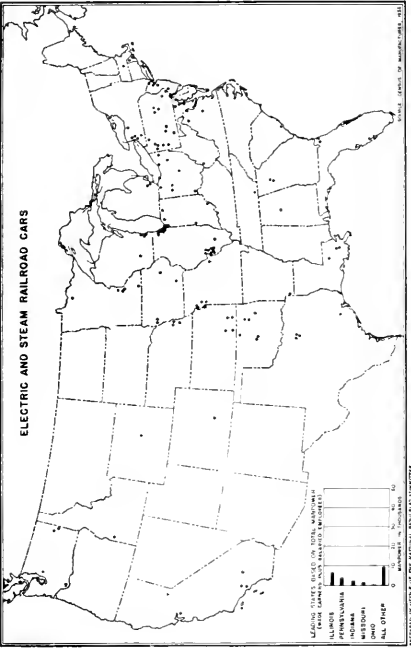




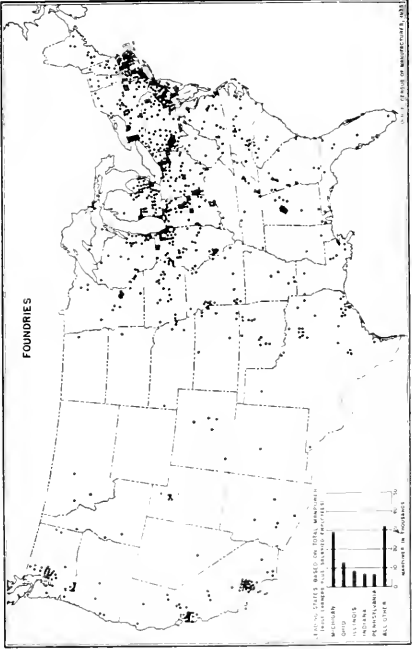
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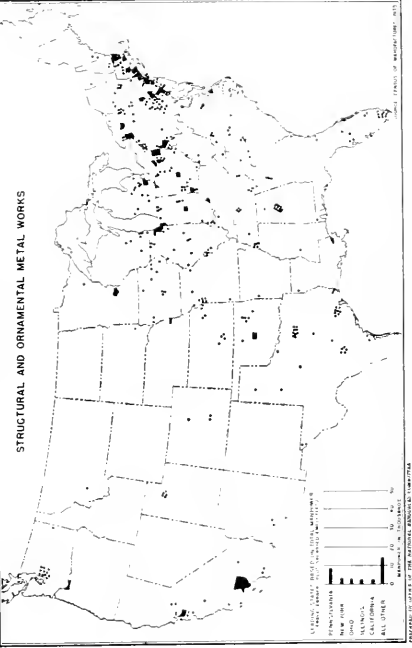
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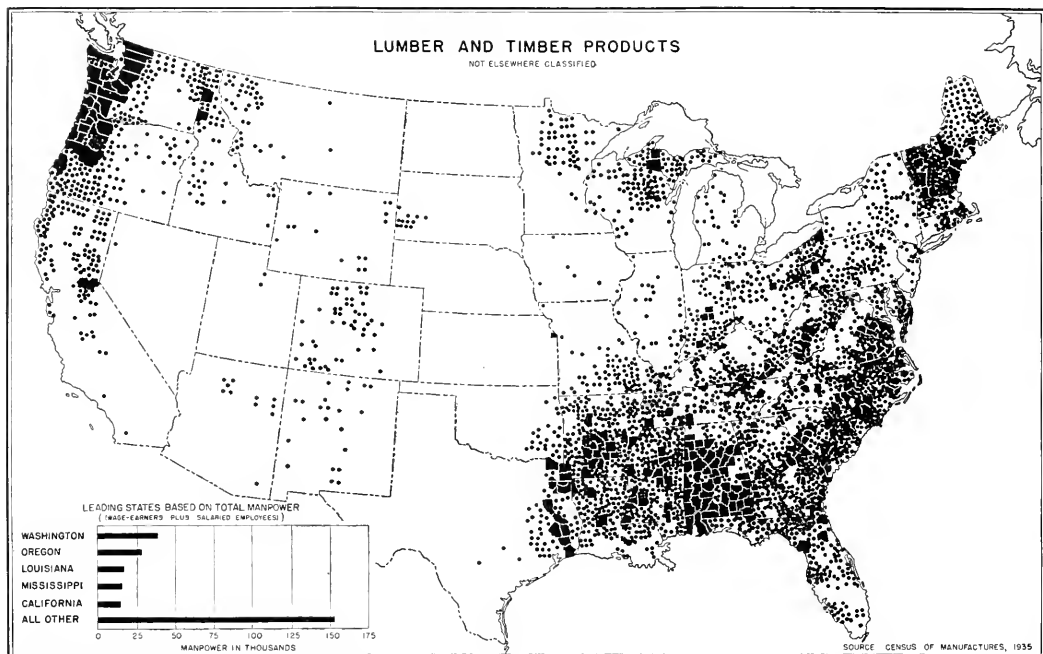


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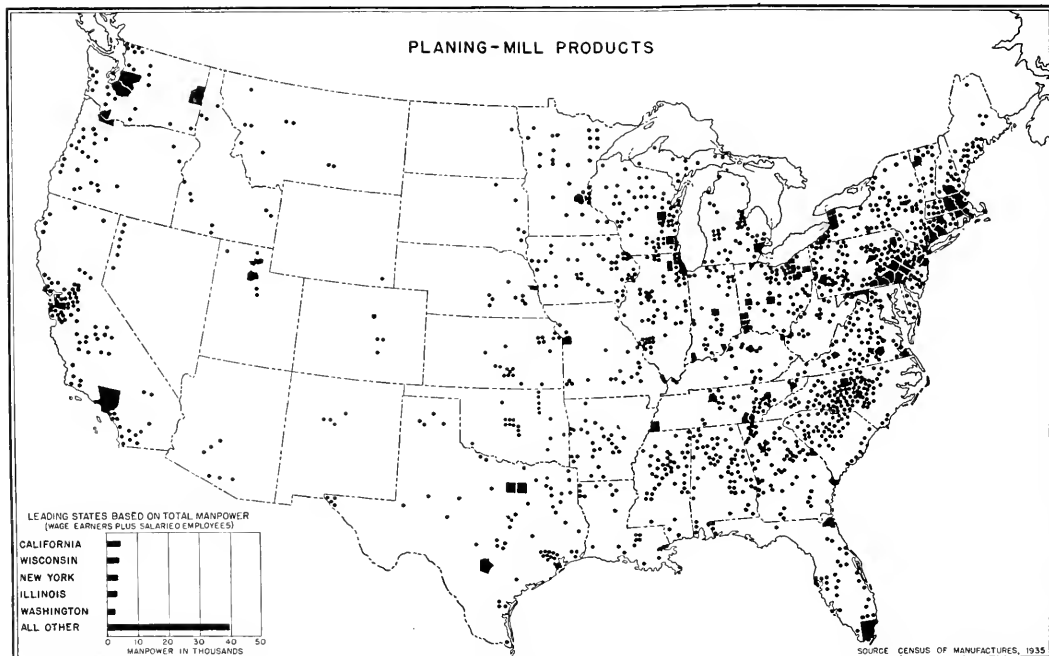


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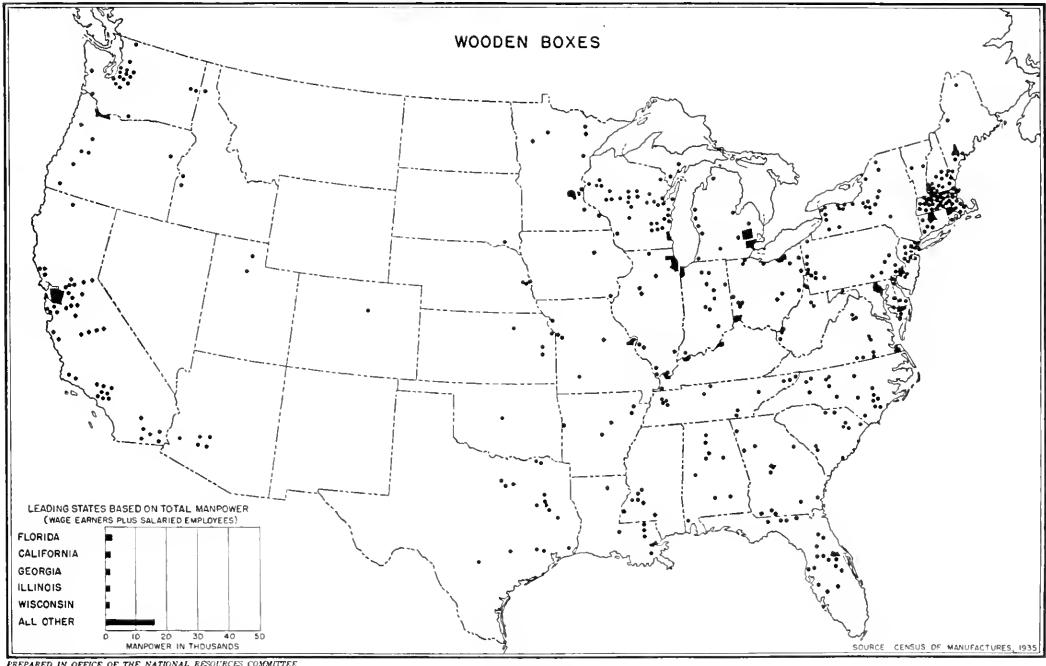
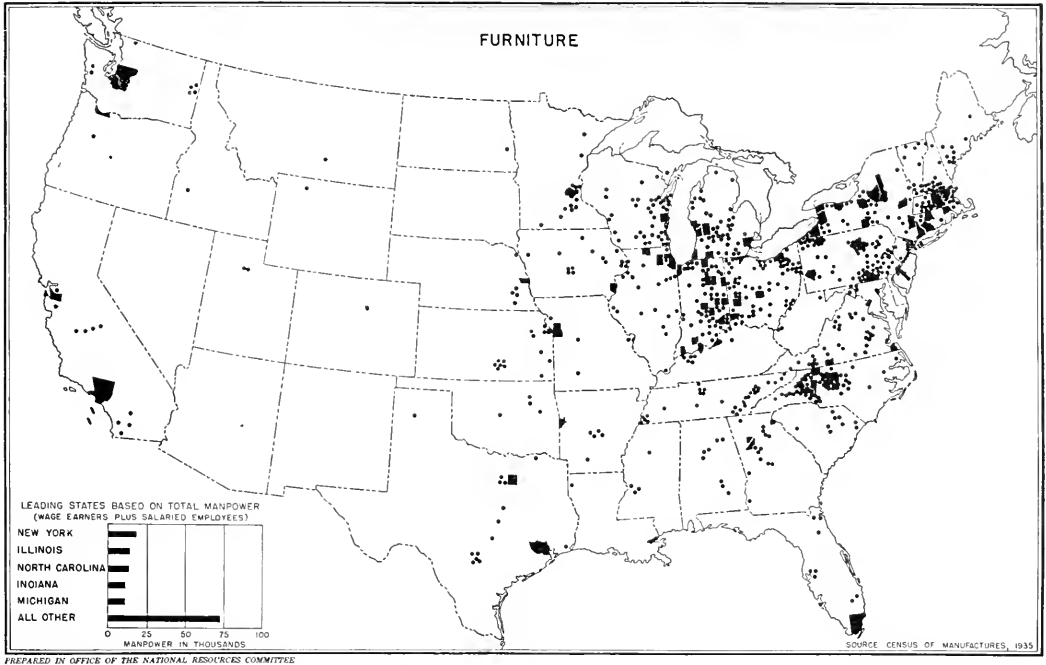




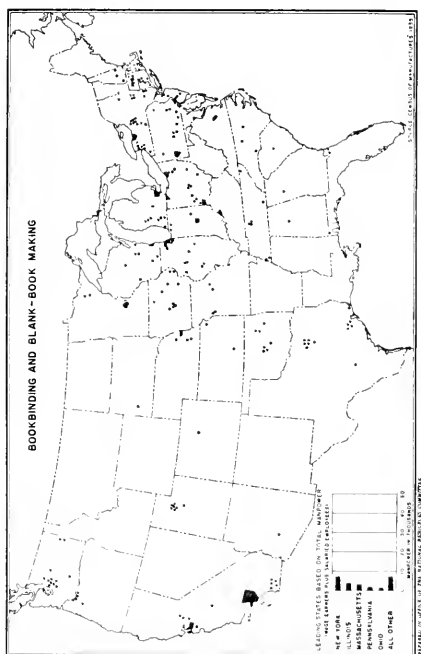
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE



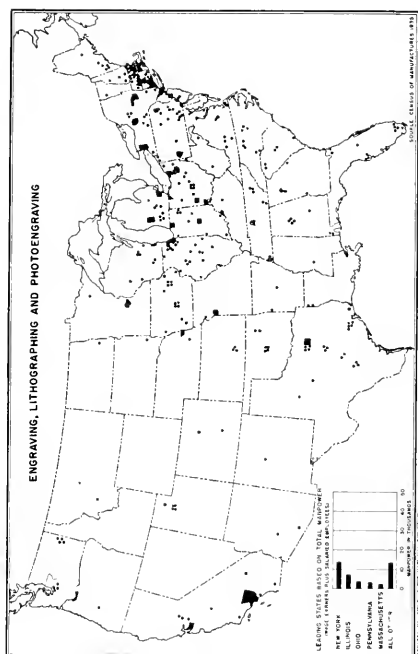
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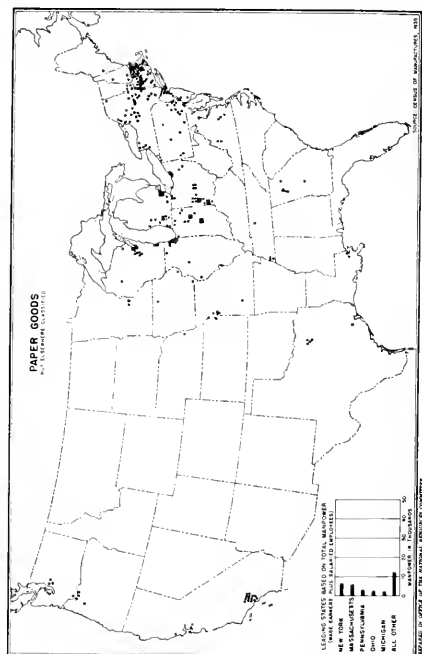
A-45



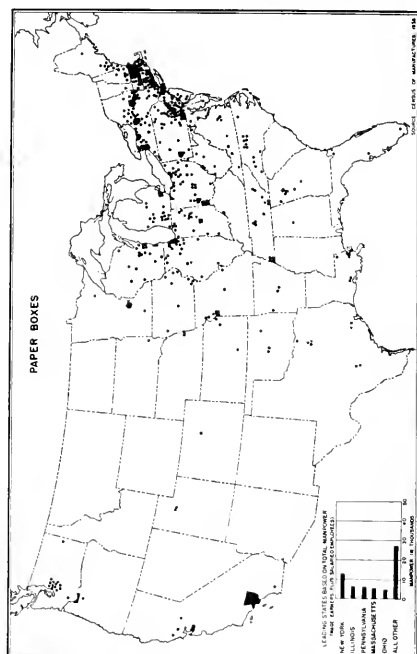
A-46



A-47

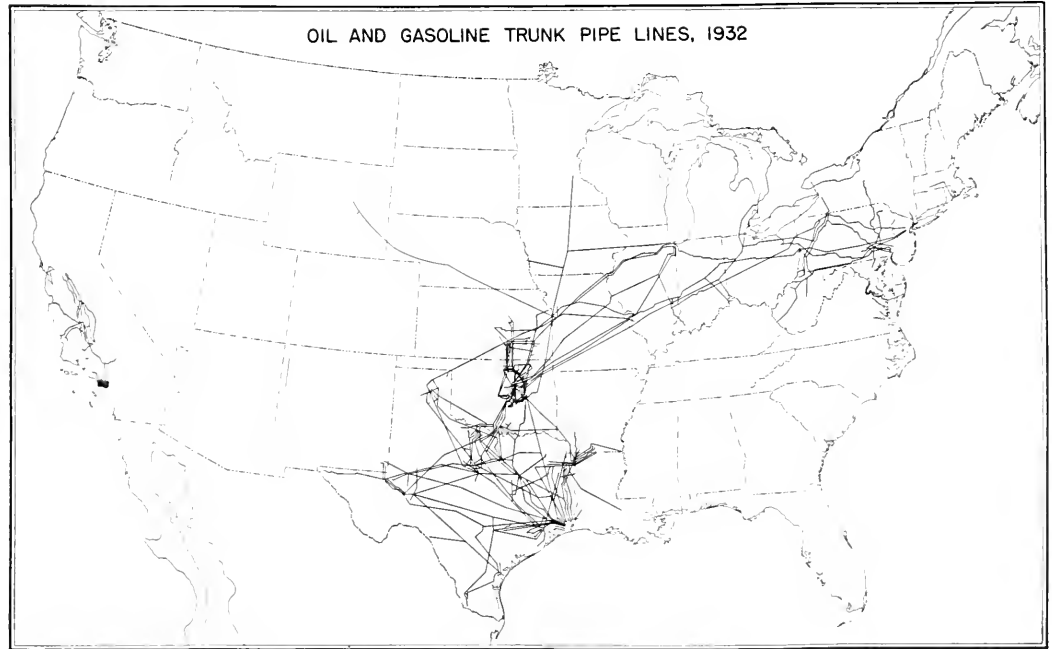
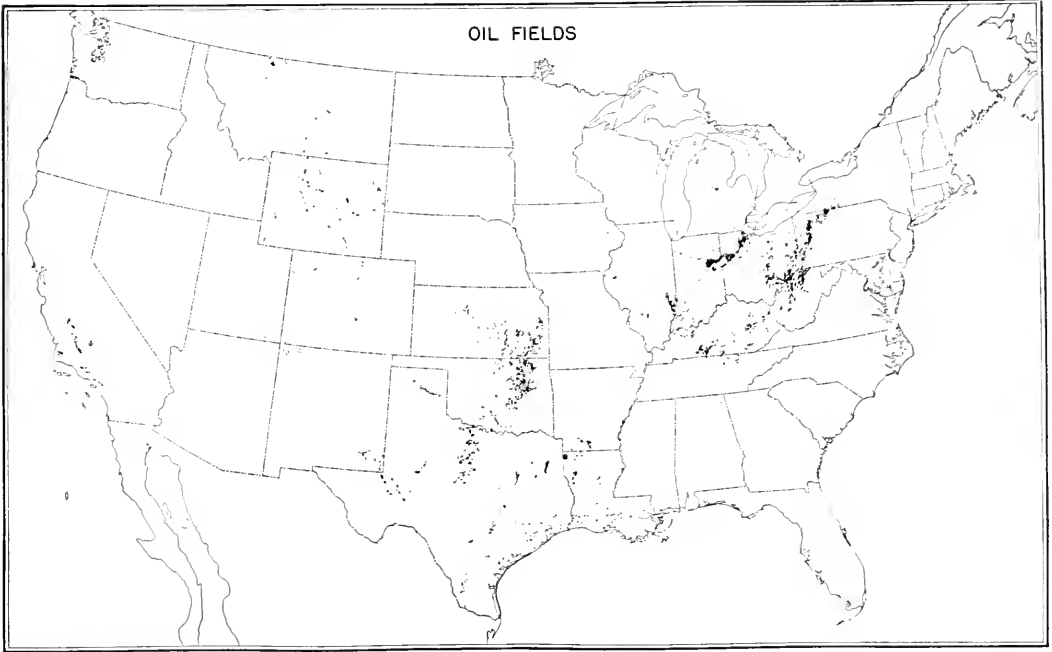


A-48



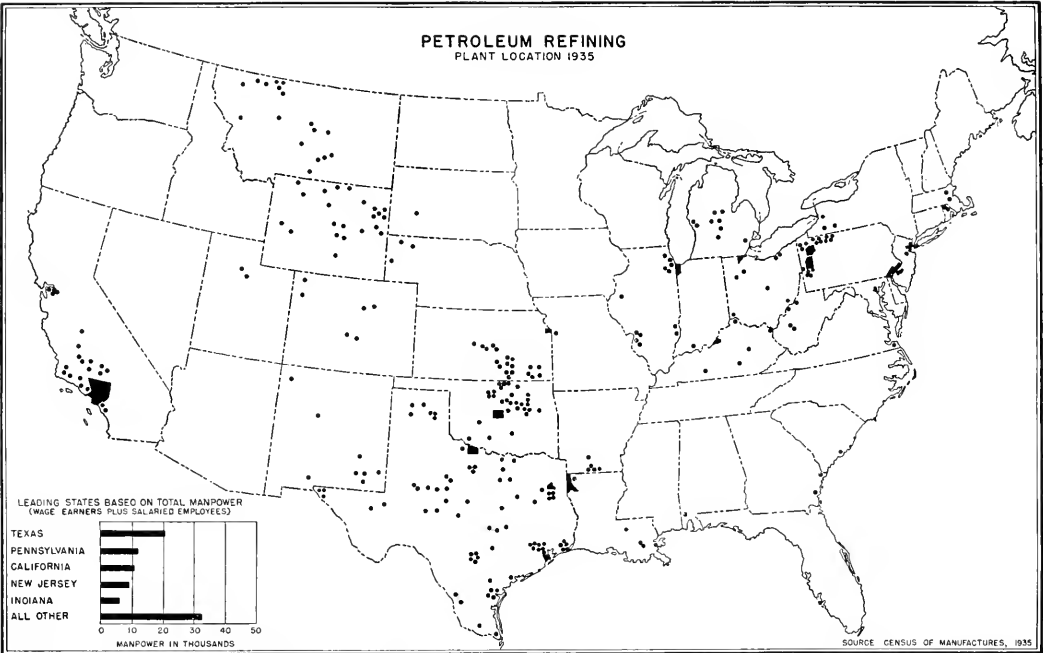
Plant Location 1925

A-49

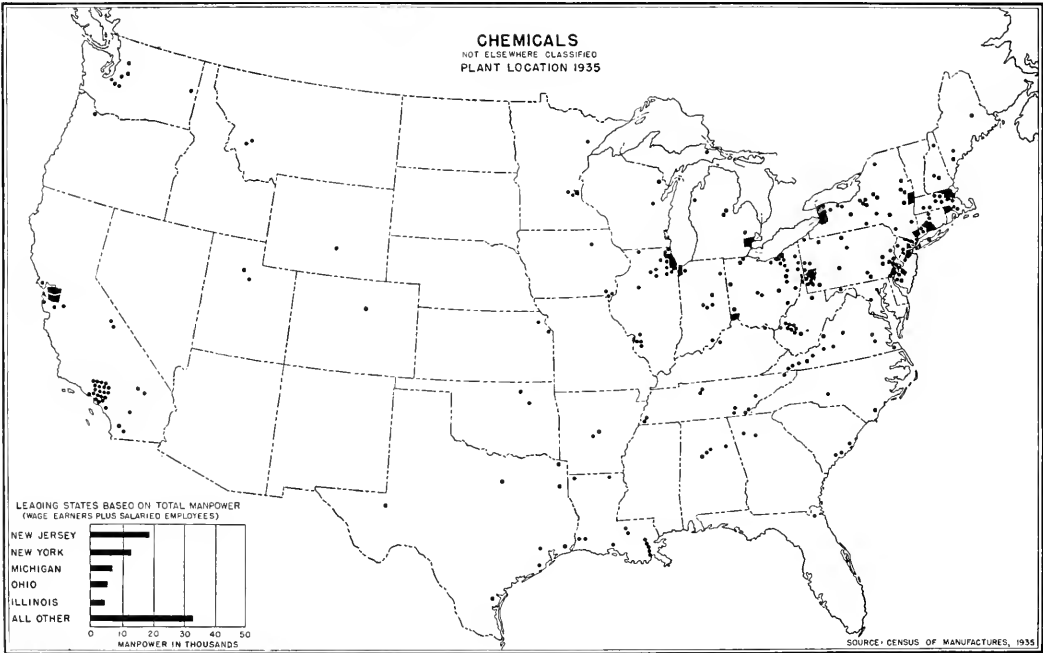


A-50

A-51



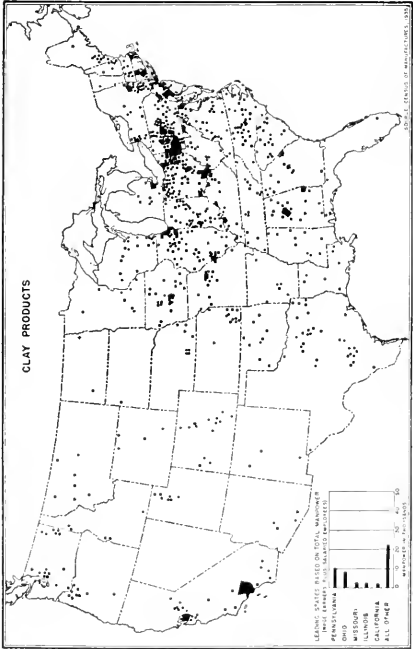
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE



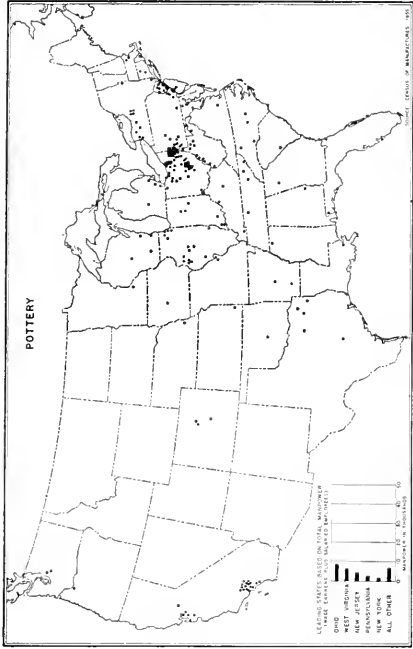
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

A-52

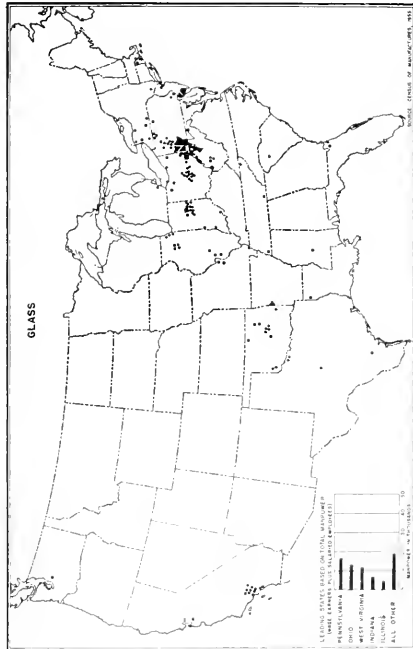
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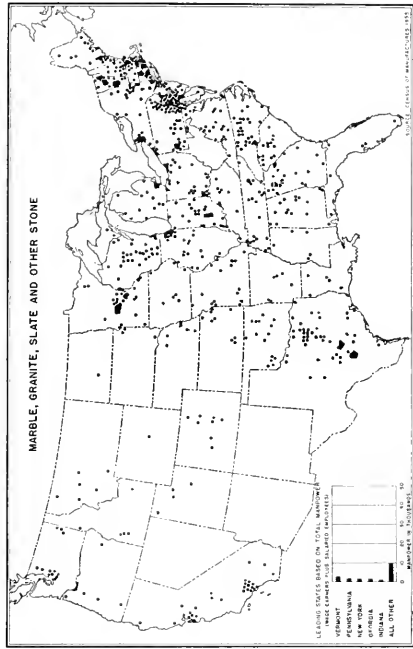
A-54



A-55



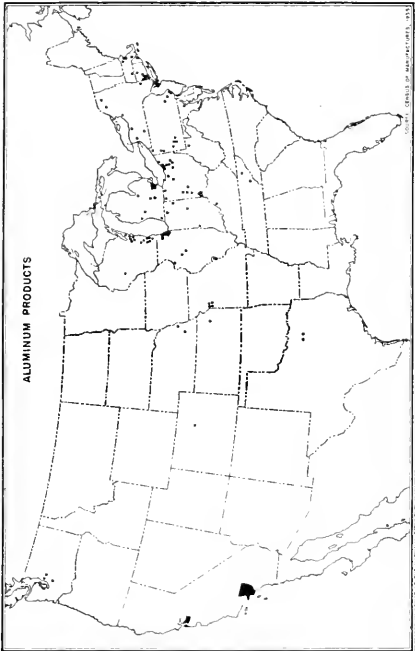
A-56



Plant Location 1935

A-58

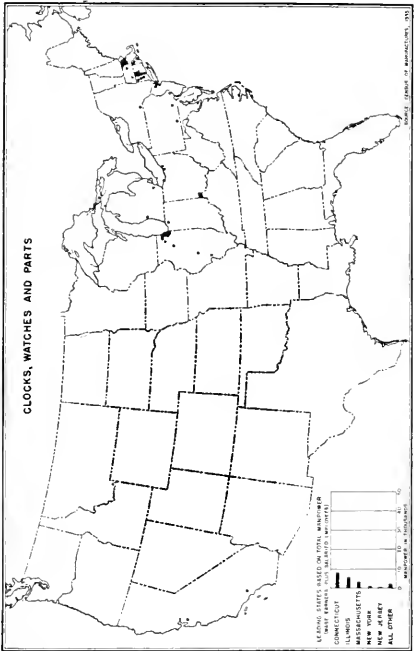
ALUMINUM PRODUCTS



PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

A-60

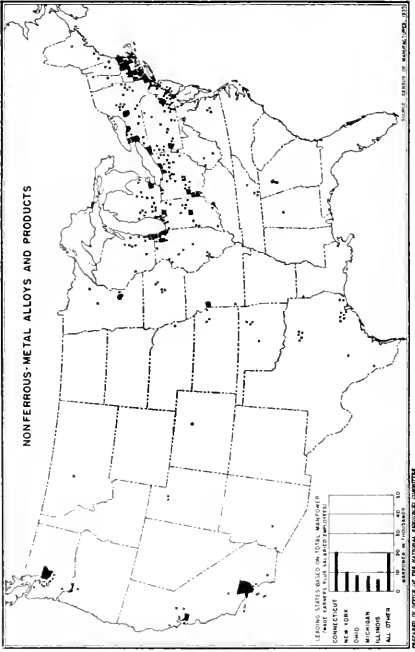
CLOCKS, WATCHES AND PARTS



PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

A-57

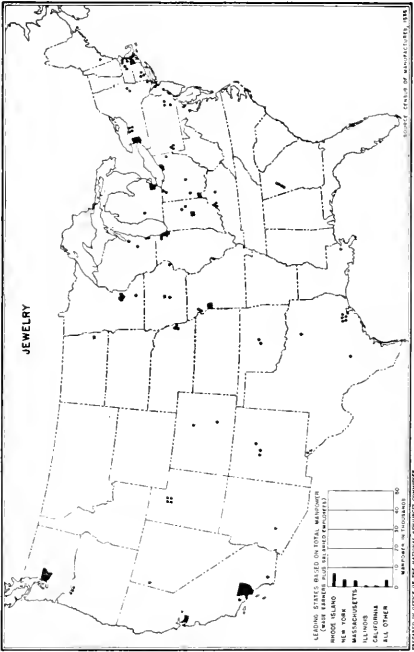
NONFERROUS-METAL ALLOYS AND PRODUCTS



PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

A-59

JEWELRY

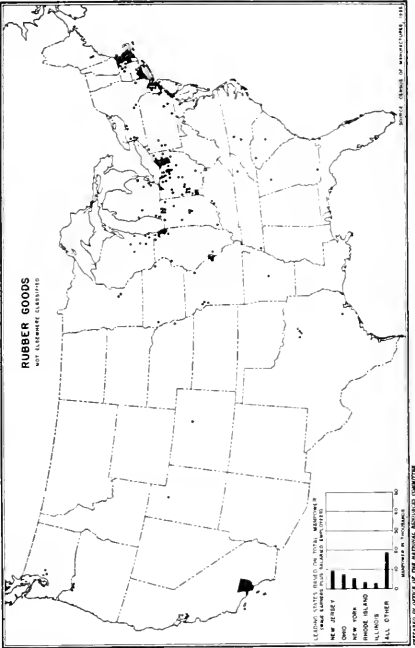


PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

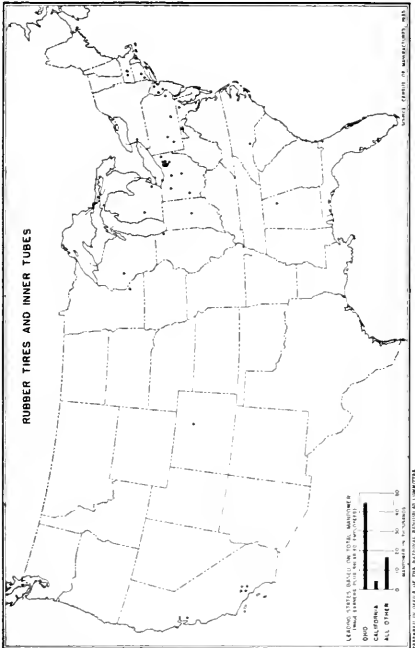
Plant Location 1935



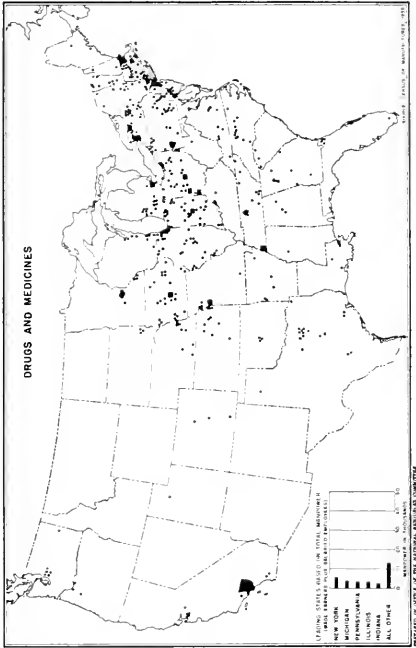
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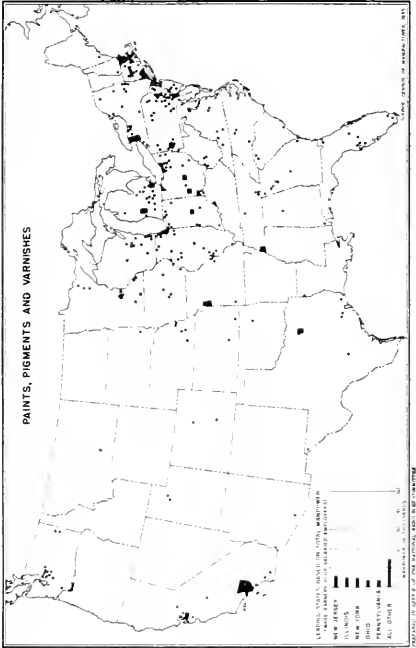
A-61



A-64

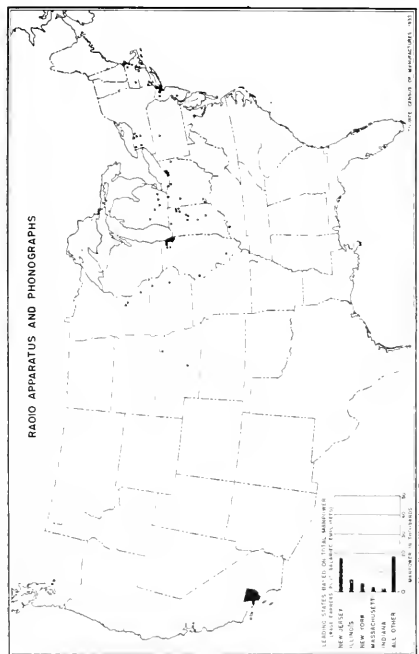


A-63

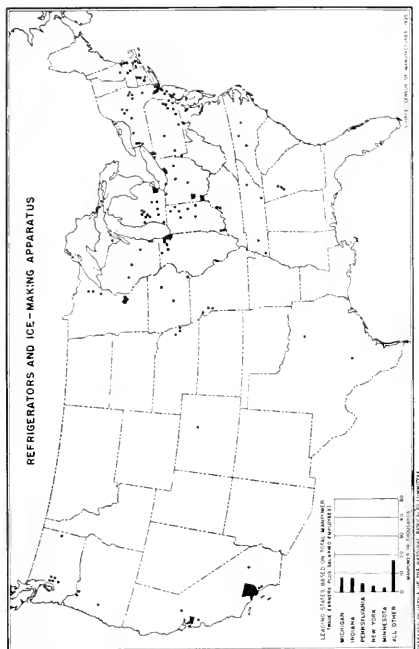


Plant Location 1935

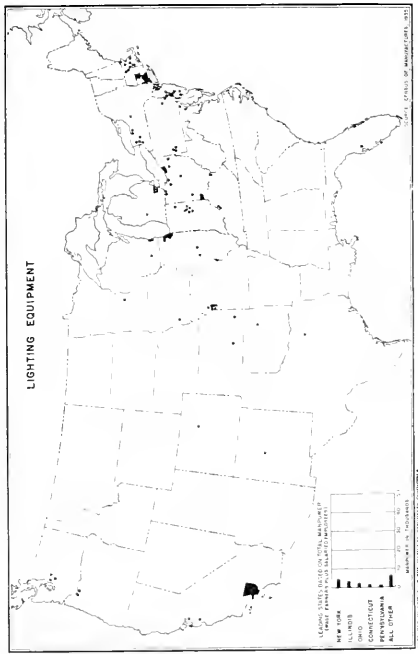
A-65



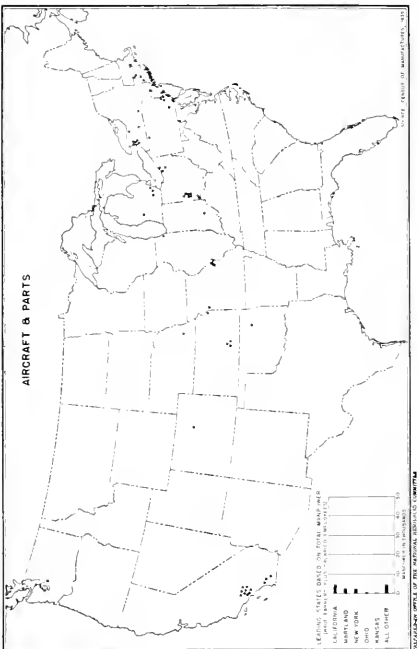
A-66



A-67



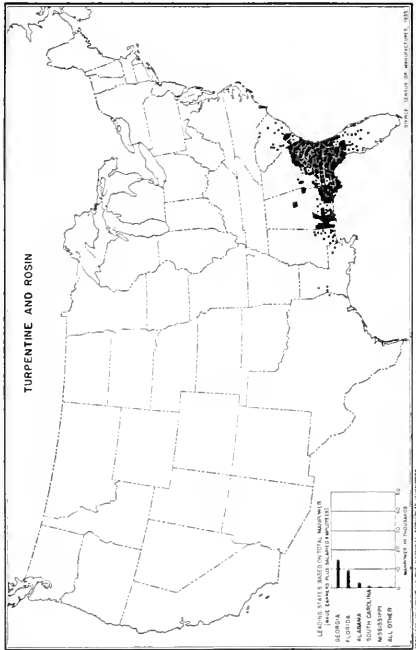
A-68



Plant Location 1935

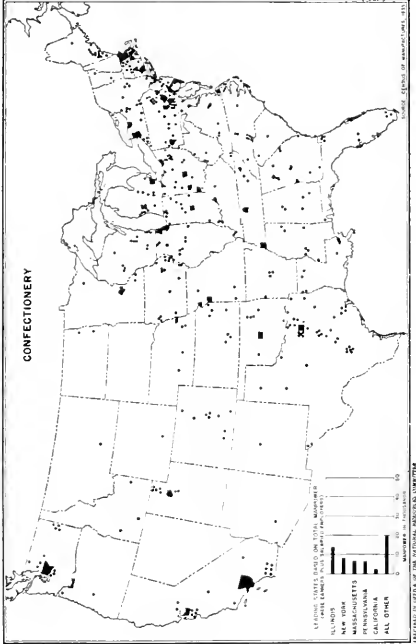
A-69

TURPENTINE AND ROSIN



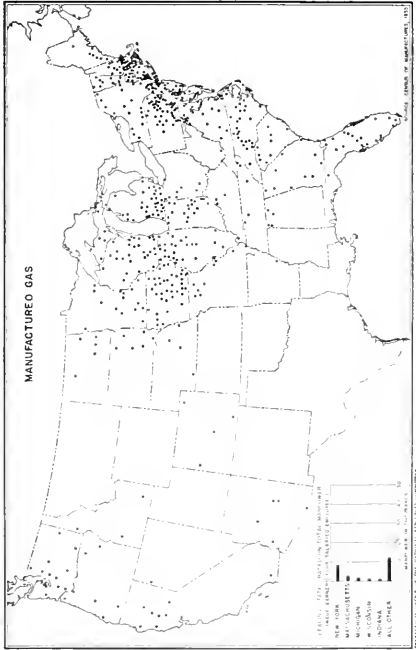
A-70

CONFECTIONERY



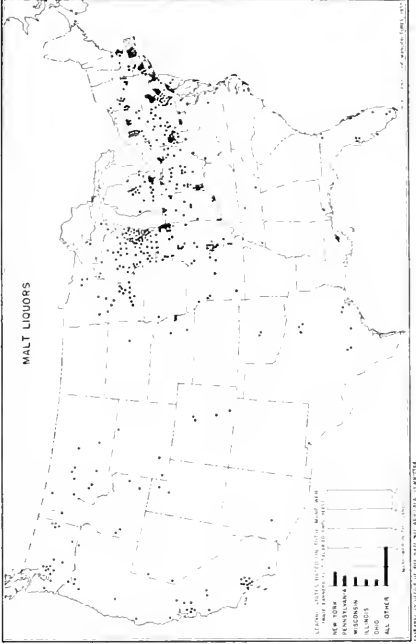
A-71

MANUFACTURED GAS



A-72

MALT LIQUORS



Plant Location 1935



## APPENDIX 17.—QUANTITATIVE INPUT AND OUTPUT RELATIONS IN 1929

The following table was prepared by Wassily W. Leontief as part of his larger study financed by the Harvard University Committee on Research in the Social Sciences. It is here printed with the kind permission of the author and of the Harvard committee, prior to the publication of the work of which it is a part.

A similar table for 1919 was prepared by Dr. Leontief and published in *The Review of Economic Statistics* for August 1936. A detailed description of the method by which the tables were derived is there presented.

The table constitutes an accounting of the flow of goods from each major segment of the economy to other major segments (and the corresponding flow of money payments from the recipients).

All productive activity is grouped into the segments listed in the table. The value of the product of each segment is allocated to each of the industries estimated to have received the product and, for finished products, to household consumption. Column 44, "undistributed," contains the remainder of the total output of each segment for which no satisfactory basis of allocation has been found. This includes finance, government, and trade, as well as miscellaneous industries not included in the listed classifications. Gross total output is the total output of each segment. Net total output is the gross total less the output allocated within the same segment, e. g., in the case of agriculture, less the part of the output represented by such items as feeds which go to another branch of agriculture. Gross total outlays represent the aggregate value of commodities and services absorbed by the respective segments on both investment and current cost accounts. The net total outlays represent the gross total outlays minus the amount originating within the segment itself.

Values are stated in terms of the value at the point of production, plus transportation. Transportation costs are charged to the producing industry and are distributed (with few exceptions) on the basis of a fixed proportion of the total price.

Wages and salaries and capital and entrepreneurial services (interest paid, dividends paid, and undistributed profits) are shown for each segment in rows 43a and 43b. Wages and salaries allocated to consumption constitute an estimate of the value of services to the consumer. Wages and salaries that are undistributed include the incomes of persons employed in trade and

finance and by government, as well as unclassified industries.

The allocation of the output of one industry will serve to illustrate the procedure:

### SLAUGHTER AND MEAT PACKING

(Includes meat packing, lard, and slaughtering; poultry killing, dressing, and packing on a wholesale basis; sausage, meat puddings, headcheese, etc., and sausage casings; and shortenings and vegetable cooking oils.)

Allocation	Product
Agriculture.....	All fertilizers.
Bread and bakery products.	Lard, lard substitutes, and other shortening (cost data, <i>Census of Manufactures</i> ).
Slaughter and meat packing.	Meats purchased (cost data, <i>Census of Manufactures</i> ); sausage casings (total produced minus exports); meats used in sausage, etc., industry (estimated on basis of cost of materials, taking into account other known major cost elements); dressed poultry sold within industry for further processing (estimated).
Butter, cheese, etc.....	Oleo oil and stock (production data, <i>Census of Manufactures</i> ).
Other food products.....	Meats used in manufacture of meat products (such as sliced and packed bacon, dried beef, etc.) in the food preparations (not elsewhere classified) industry (estimated on basis of cost of materials).
Chemicals.....	Stearin, fertilizer materials, specified as such; grease and tallow, including soap stock; and an estimated (from cost of materials) amount for materials used in the grease and tallow (not including lubricating grease) industry.
Yarn and cloth.....	Wool.
Leather, tanning.....	Hides, skins, and pelts.
Consumption.....	All meat products not elsewhere distributed; all lard not elsewhere distributed; oleomargarine; all shortenings and vegetable cooking oils not elsewhere distributed; poultry products ready for consumption; and a small amount of soap produced within this group.
Undistributed.....	All products not elsewhere distributed (mainly miscellaneous unspecified products).

TABLE 1A.—Quantitative input and output relations in the economic

(Unit=

	Agriculture	Flour and grist mill products	Canning and preserving	Bread and bakery products	Sugar, glucose, and starch	Liquors and beverages	Tobacco manufactures	Slaughtering and meat packing	Butter, cheese, etc.	Other food industries	Iron mining	Blast furnaces	Steel works and rolling mills	Other iron and steel and electric manufactures	Automobiles	Nonferrous metal mining	Smelting and refining	Brass, bronze, copper, per. etc., manufactures	Nonmetal minerals	Petroleum and natural gas	Refined petroleum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 Agriculture.....	52.7	7.9	2.5	0.4	0.6	0.1	1.3	21.6	7.9	2.2											
2 Flour and grist mill products.....	52.1	4.4	28.4	17.6	7.8	4.2	9.5	61.4	68.7	13.5											
3 Canning and preserving.....	8.7	1.4		19.8																	
4 Bread and bakery products.....																					
5 Sugar, glucose, and starch.....	9	1	5.5	6.4	1.8	1.8			4.5	13.0											
6 Liquors and beverages.....			5.0	3.2	1.8	1.5			3.2	3.0											
7 Tobacco manufactures.....										.6											
8 Slaughtering and meat packing.....	1			2.0				10.5	1	.2											
9 Butter, cheese, etc.....	(*)			4.3				10.4	.3	.5											
10 Other food industries.....				3.6						3.5											
11 Iron mining.....				2.1		1.2				6.0											
12 Blast furnaces.....				1.7		6.1				6.8											
13 Steel works and rolling mills.....												97.9									
14 Other iron and steel and electric manufactures.....												54.1									
15 Automobiles.....													80.5	16.8	1.1						
16 Nonferrous metal mining.....													20.6	1.1	.2						
17 Smelting and refining.....													18.5	49.9	12.1						
18 Brass, bronze, copper, etc., manufactures.....	4.0	.1	8.8	.2	(*)	.1	(*)	.1	.2	.1	(*)	.3	17.6	12.2	4.7						
19 Nonmetal minerals.....	4.7	.5		1.5	.1	4.8	.5	.2	1.8	.9	1.3		6	10.3	12.8						
20 Petroleum and natural gas.....															36.0						
21 Refined petroleum.....															33.7						
22 Coal.....																4	90.3				
23 Coke.....																4	43.3				
24 Manufactured gas.....																	55.2				
25 Electric utilities.....																	56.1				
26 Chemicals.....																		50.8			
27 Lumber and timber products.....																		38.9			
28 Other wood products.....																			5.6		
29 Paper and wood pulp.....																			5.3		
30 Other paper products.....																				7.4	
31 Printing and publishing.....																				1.1	
32 Yarn and cloth.....																				3.6	
33 Clothing.....																				3.6	
34 Other textile products.....																				80.1	
35 Leather tanning.....																				50.8	
36 Leather shoes.....																				4.2	
37 Other leather products.....																				5.8	
38 Rubber manufactures.....																				3.7	
39 Industries, n. e. s.....																				3.3	
40 Construction.....																				2	

\* Arabic=percentages of the net totals of the rows (net total output). These are based on the corresponding actual figures. (Unit=1 percent.) Asterisks indicate percentages of less than .5% of 1 percent. The net total output percentages (column 40) sometimes vary from 100 percent, because for checking purposes they were derived by adding all the percentage figures (arabic) in the corresponding row (excluding the distribution percentage of any industry to itself; e. g., 1 to 1, 2 to 2, etc.).

system of the United States, 1929: Percentage distribution <sup>1</sup>

1 percent)

Coal	Coke	Manufactured gas	Electric utilities	Chemicals	Lumber and timber products	Other wood products	Paper and pulp	Other paper products	Printing and publishing	Yarn and cloth	Clothing	Other textile products	Leather tanning	Leather shoes	Other leather products	Rubber, manufactures	Industries, n. e. s.	Construction	Transportation (steam railroads)	Exports	Consumption	Undistributed	Gross total output	Net total output
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
				1.9	0.5	(*)	0.2			6.1			(*)						11.8	32.4	2.6	152.7	99.8	1
				5.2	2.3	0.3	1.6			13.5			0.7						22.8	5.3	6.2	101.4	100.0	2
																			6.0	36.8	(*)			3
																			11.6	82.5	5.9	100.0	100.0	4
																			1.5	1.1	1	100.0	100.0	5
																			2.2	48.9	9	100.0	100.0	6
																			2.6	58.3	5.4	201.8	100.0	7
																			1.4	95.6	6	101.7	100.0	8
																			1.5	98.1	(*)	100.0	100.0	9
																			2.2	82.7	3.7	110.5	100.0	10
																			2.5	89.2	1.9	100.0	100.0	11
																			1.5	89.2	1.9	100.0	100.0	12
																			1.5	89.2	1.9	100.0	100.0	13
																			1.5	89.2	1.9	100.0	100.0	14
																			1.5	89.2	1.9	100.0	100.0	15
																			1.5	89.2	1.9	100.0	100.0	16
																			1.5	89.2	1.9	100.0	100.0	17
																			1.5	89.2	1.9	100.0	100.0	18
																			1.5	89.2	1.9	100.0	100.0	19
																			1.5	89.2	1.9	100.0	100.0	20
																			1.5	89.2	1.9	100.0	100.0	21
																			1.5	89.2	1.9	100.0	100.0	22
																			1.5	89.2	1.9	100.0	100.0	23
																			1.5	89.2	1.9	100.0	100.0	24
																			1.5	89.2	1.9	100.0	100.0	25
																			1.5	89.2	1.9	100.0	100.0	26
																			1.5	89.2	1.9	100.0	100.0	27
																			1.5	89.2	1.9	100.0	100.0	28
																			1.5	89.2	1.9	100.0	100.0	29
																			1.5	89.2	1.9	100.0	100.0	30
																			1.5	89.2	1.9	100.0	100.0	31
																			1.5	89.2	1.9	100.0	100.0	32
																			1.5	89.2	1.9	100.0	100.0	33
																			1.5	89.2	1.9	100.0	100.0	34
																			1.5	89.2	1.9	100.0	100.0	35
																			1.5	89.2	1.9	100.0	100.0	36
																			1.5	89.2	1.9	100.0	100.0	37
																			1.5	89.2	1.9	100.0	100.0	38
																			1.5	89.2	1.9	100.0	100.0	39
																			1.5	89.2	1.9	100.0	100.0	40
																			1.5	89.2	1.9	100.0	100.0	41
																			1.5	89.2	1.9	100.0	100.0	42
																			1.5	89.2	1.9	100.0	100.0	43
																			1.5	89.2	1.9	100.0	100.0	44
																			1.5	89.2	1.9	100.0	100.0	45
																			1.5	89.2	1.9	100.0	100.0	46

Italics=percentages of the net totals of the rows (net total outlays=input). These are based on the corresponding actual figures. (Footnote 1 percent.) Asterisks (\*) indicate percentages of less than 1/2 of 1 percent. The net total outlays percentages (row 46) sometimes vary from 100 percent, because for checking purposes they were derived by adding all the percentage figures (italics) in the corresponding column (excluding the distribution percentage of any industry from itself; e. g., 1 to 1 from 1, to 2 from 2, etc.

TABLE 1A.—Quantitative input and output relations in the economic system

(Unit =

		Agriculture	Flour and grist mill products	Canning and preserving	Bread and bakery products	Sugar, glucose, and starch	Liquors and beverages	Tobacco manufactures	Slaughtering and meat packing	Butter, cheese, etc.	Other food industries	Iron mining	Blast furnaces	Steel works and rolling mills	Other iron and steel and electric manufactures	Automobiles	Nonferrous metal mining	Smelting and refining	Brass, bronze, copper, etc., manufactures	Nonmetal minerals	Petroleum and natural gas	Refined petroleum
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
41	Transportation (steam railroads).....	11.1	1.3	.5		.5		(*)	1.4	.1	1.4	1.4	.2	3.3	1.5	.2	.3	.2	.1	.4	5.4	
42	Imports.....	1.6	5.0	.3	.3	1.5	2.2	2.7	2.1	.3	3.9	1.8	6.9	1.8	.8	4.5	4.4	1.1	.3	12.7	1.3	
43a	Wages and salaries.....	1.6	2.8	1.7	1.0	6.2	(*)	2.1	1.3	.2	8.1	.5	5.5	1.8	.4	.4	.4	2.9	1.6	.5	1.9	
43b	Capital and entrepreneurial services.....	.5	.5	.3	.3	.6	.6	.8	1.8	.7	23.8	.3	3.2	5.8	.4	.4	.4	1.5	.6	.4	5.0	
43c	Total services.....	9.3	1.2	.3	.7	1	2	4	4	.2	5	2	1	1.5	7.8	1.9	4	1	4	1.4	9	
	Undistributed.....	67.4	9.0	21.2	30.3	12.2	41.5	19.5	9.0	11.7	19.8	36.3	10.3	33.8	45.0	31.9	60.7	10.9	25.4	44.0	25.3	
44a	Taxes.....																					
44b	Other.....																					
44c	Total.....	1.0	1.4	.5	1.0	.6	2	1.6	1.5	.2	1.0	.2	.4	1.7	8.1	2.3	19.2	.5	19.0	1.4	2.3	
45	Gross total outlays.....	6.1	7.4	4	36.5	26.4	69.6	21.0	10.0	28.6	25.0	25.3	26.5	32.0	26.7	19.7	25.5	5	31.6	5.2	9.6	
46	Net total outlays.....	154.2	101.6	100.0	100.0	101.8	101.5	100.0	110.4	100.0	105.8	100.0	100.0	117.6	110.3	133.7	100.4	156.1	105.3	106.8	103.6	
		100.1	100.2	100.0	99.9	99.9	99.9	99.9	99.8	99.9	100.1	100.0	99.9	100.0	100.0	99.9	100.0	100.0	99.9	99.9	100.0	

TABLE 1.—Quantitative input and output relations

(Unit =

		Agriculture	Flour and grist mill products	Canning and preserving	Bread and bakery products	Sugar, glucose, and starch	Liquors and beverages	Tobacco manufactures	Slaughtering and meat packing	Butter, cheese, etc.	Other food industries	Iron mining	Blast furnaces	Steel works and rolling mills	Other iron and steel and electric manufactures	Automobiles	Nonferrous metal mining	Smelting and refining	Brass, bronze, copper, etc., manufactures	Nonmetal minerals	Petroleum and natural gas	Refined petroleum
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Agriculture.....	5,346	793	255	41	66	14	125	2,193	802	221											
2	Flour and grist mill products.....		665	21		325																
3	Canning and preserving.....																					
4	Bread and bakery products.....																					
5	Sugar, glucose, and starch.....		7		45	53	15	15		37	115											
6	Liquors and beverages.....										9											
7	Tobacco manufactures.....																					
8	Slaughtering and meat packing.....		3			70			372	4	8											
9	Butter, cheese, etc.....					41					40											
10	Other food industries.....					28		20			98											
11	Iron mining.....												284									
12	Blast furnaces.....													656	137	9						
13	Steel works and rolling mills.....		25									1	3	559	1,509	365	5					
14	Other iron and steel and electric manufactures.....		464	8	79	21	1	16	4	7	21	15	4	20	1,274	548	20		18	1	239	15
15	Automobiles.....															1,445						
16	Nonferrous metal mining.....																2					
17	Smelting and refining.....													18	95	3	411	532	472	(*)		
18	Brass, bronze, copper, etc., manufactures.....							8						24	492	111		66				
19	Nonmetal minerals.....	10		38		1	20							27	2	31	61		(*)	149	23	1,647
20	Petroleum and natural gas.....													16	9	1				75		1,434
21	Refined petroleum.....	35		1	2	2	1				1			(*)	38	27	6	4	5	17		8
22	Coal.....		3	3		11	3	1	12	7	6	3	2	74	63	11	5	11	5	85		8
23	Coke.....		(*)	(*)	4	1	(*)	(*)	(*)	(*)	(*)	(*)	188	27	22	1	(*)	5	1	1		8
24	Manufactured gas.....		(*)	(*)	4	(*)	(*)	(*)	1	(*)	(*)	(*)	16	2	16	2	14	7	9	25		7
25	Electric utilities.....		11	2	11	(*)	2	1	8	4	11	5	1	32	90	20	13	7	9	35		7
26	Chemicals.....	394					4		101	2	8			43	34	9		52	25	2	18	
27	Lumber and timber products.....	244										2		34	58	8						
28	Other wood products.....							12								88						
29	Paper and wood pulp.....																					
30	Other paper products.....																					
31	Printing and publishing.....																					

\* This table was prepared by Wassily W. Leontief as part of a larger study financed by the Harvard University Committee on Research in the Social Sciences. For the method employed and similar tables for 1919, see "Quantitative Input and Output Relations in the Economic System of the United States" by W. Leontief, in the "Review of Economic Statistics," August 1936.



## of the United States, 1929: Percentage distribution—Continued

1 percent)

[illegible]

in the economic system of the United States, 1929"

Million dollars]

	Coke	Manufactured gas	Electric utilities	Chemicals	Lumber and timber products	Other wood products	Paper and wood pulp	Other paper products	Printing and publishing	Yarn and cloth	Clothing	Other textile products	Leather tanning	Leather shoes	Other leather products	Rubber manufactures	Industries, n. e. s.	Construction	Transportation (steam railroads)	Exports	Consumption	Undistributed	Gross total output	Net total output		
	12	13	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	
					196	48	5	17			623									1,194	3,281	259	15,488	10,142		
											5										105	645	10	1,775	1,751	
																					100	713	51	864	864	
																					3	1,359	14	1,375	1,375	
																					21	179	44	836	821	
																					4	283		301	296	
																					19	1,250	5	1,250	1,250	
					60						20			112							204	2,938	133	3,924	3,552	
								3													17	1,014	22	1,157	1,137	
																					14	1,534	50	1,744	1,646	
																					5	1	280	280	10	
																					1		10	815	815	
																					155	9	411	3,580	3,027	
																					807	1,151	4,181	12,965	11,591	
																					532	2,926	551	5,474	4,009	
																					1		41	457	455	
																					158		119	1,562	949	
																					76	110	236	1,255	1,189	
																					26	35				
																					10	1,180	28	73	149	
																					73	149	352	2,247	2,098	
																					192		25	2,131	2,056	
																					323	151	901	3,053	2,949	
																					98	67	280	2,342	2,327	
																					33	67	404	600	400	
																					232	97	481	471	471	
																					2,196	1,521	4,478	4,371	4,371	
																					1,029	1,136	3,778	3,498	3,498	
																					149	1	612	2,481	1,937	
																					31	836	496	1,496	1,476	
																					25	64	341	1,273	1,041	
																					132	93	549	600	600	
																					25	692	2	103	3,159	2,757

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NOTE.—Asterisks indicate a quantity of less than half a million dollars.

## Quantitative input and output relations in the eco

Unit =

		Agriculture	Flour and grist mill products	Canning and preserving	Bread and bakery products	Sugar, glucose, and starch	Liquors and beverages	Tobacco manufactures	Slaughtering and meat packing	Butter, cheese, etc.	Other food industries	Iron mining	Blast furnaces	Steel works and rolling mills	Other iron and steel and electric manufactures	Automobiles	Nonferrous metal mining	Smelting and refining	Brass, bronze, copper, etc., manufactures	Nonmetal minerals	Petroleum and natural gas	Refined petroleum
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
32	Yarn and cloth.....	20													5	19						
33	Clothing.....																					
34	Other textile products.....																					
35	Leather tanning.....															9						
36	Leather shoes.....																					
37	Other leather products.....	25																				
38	Rubber manufactures.....	11																				
39	Industries, n. e. s.....	39																				
40	Construction.....														8	266						
41	Transportation (steam railroads).....	741	88	33		36	5	3	96	24	5	92	15	220	102	194	21	10	4	280	28	363
42	Imports.....	50	39	15	16	309	2	106	65	8	403		27	90	20	(*)		144	81	24		96
43a	Wages and salaries.....	955	93	109	332	51	60	118	248	57	216	47	54	792	4,226	871	139	69	227	681	405	173
43b	Capital and entrepreneurial services.....	5,699	67	82	164	52	77	137	74	80	120	62	32	243	1,347	496	141	34	89	290	125	478
43c	Total services.....	6,654	150	191	496	103	157	255	322	137	336	109	86	1,675	5,573	1,367	290	103	316	971	530	651
44a	Undistributed:																					
44b	Taxes.....	489																				
44c	Other.....																					
44d	Total.....	489	665	231	500	307	87	794	751	117	485	75	194	814	3,970	1,146	94	212	236	674	1,135	310
45	Gross total outlays.....	15,221	1,799	899	1,639	857	335	1,309	3,942	1,168	1,792	300	833	3,744	13,667	5,734	480	1,481	1,308	2,354	2,168	3,364
46	Net total outlays.....	9,875	1,775	869	1,639	842	330	1,309	3,570	1,168	1,694	300	853	3,185	12,393	4,289	478	1,449	1,242	2,205	2,063	3,240

## Economic system of the United States, 1929—Continued

Million dollars

Coal	Coke	Manufactured gas	Electric utilities	Chemicals	Lumber and timber products	Other wood products	Paper and wood pulp	Other paper products	Printing and publishing	Yarn and cloth	Clothing	Other textile products	Leather tanning	Leather shoes	Other leather products	Rubber manufactures	Industries, n. e. s.	Construction	Transportation (steam railroads)	Exports	Consumption	Undistributed	Gross total output	Net total output
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
						11	15	(*)	6	690	1,363	331		23	1	109	37	2		178	1,885	486	5,181	4,491
						27			3	33	302				8		(*)			15	3,413	81	3,811	3,512
				25		6			4		82		2	236	91		2			16	172	251	595	565
											12			195						43	35	62	530	528
																				12	951		1,158	963
											3				3					6	181	51	267	261
											10			17						77	513	202	1,130	1,108
											16			1						101	1,213	681	2,238	2,187
																				2,623	3,708	6,971	6,971	
																				950	1,728	6,696	6,696	

## APPENDIX 18.—SUPPORTING STATISTICS AND METHODS OF DERIVING CERTAIN TABLES AND CHARTS IN THE REPORT<sup>1</sup>

The purpose of this appendix is to present in one convenient place the data, sources, and description of the methods used in deriving the data supporting certain tables and charts presented in the body of the report. In some cases the materials given in the text required extensive discussion and supporting statistics, and in such cases a separate appendix was written to cover them. In other cases a single reference was sufficient to indicate the source. The cases requiring more than a reference but not justifying a separate appendix are brought together in this appendix. The order of the materials corresponds to the order in which they are discussed in the text.

### 1. Estimate of the Amount of Food Stored in New York City

In chapter I an estimate is given of the food supply in the metropolitan area of New York. A conditional estimate of the amount of food stored in New York City may be made for the end of the year 1929 from data published by the Bureau of the Census. The estimate was made as follows: Total sales by retail stores "in the food group" and for the classification "restaurants, cafeterias, and eating places" were added to sales by wholesalers in the same classification to ultimate consumers at regular retail prices. The figures are shown in table I.

TABLE I.—*Retail sales of food in New York City for the year 1929*

(Millions of dollars)	
By retailers:	
Food group (not elsewhere classified) .....	\$1,062.3
Restaurants, cafeterias, and eating places .....	345.4
By wholesalers (at retail prices):	
Food group (not elsewhere classified) .....	12.8
Groceries and food specialties .....	6.4
Total retail sales of food .....	1,426.9

Source: *Fifteenth Census of the United States*, wholesale figures from Vol. II, *Wholesale Distribution*, p. 1007, et. seq.; retail figures from Vol. I, *Retail Distribution*, part 2, p. 215, et. seq.

From the same source, estimates of value of stocks on hand were made, value of wholesalers' stocks were marked up 10 percent and added to value of retailers' stocks; this total was then marked up 20 percent in order to get an estimate of the value of stocks in terms of consumers' prices. Computations are shown in table II.

<sup>1</sup> Appendix 18 was prepared by Louis J. Paradiso, assisted by Grace W. Knott, Paul H. Fischer, Ezra Glaser and James Arnold; Marion Tolles also assisted in the preliminary research in connection with section 5 on wealth.

TABLE II.—*Value of stocks of food in New York City on December 31, 1929*

(Millions of dollars)	
Wholesaler's stocks:	
Food products not elsewhere classified .....	\$33.3
Groceries and food specialties .....	93.2
Total at cost to wholesaler .....	126.5
Plus 10-percent mark-up <sup>1</sup> .....	12.7
Wholesaler's stocks at prices to retailers .....	\$139.2
Retailer's stocks:	
Food group .....	46.5
Restaurants, cafeterias, and eating places .....	4.6
Total at cost to retailer .....	51.1
Total <sup>1</sup> stocks .....	190.3
Plus 20-percent mark-up <sup>1</sup> .....	38.1
Total food stocks at prices to consumers .....	228.4

<sup>1</sup> These percentages are rough estimates covering sales of all foods assuming all sales went through food stores rather than restaurants. They are in agreement with the preliminary estimates obtained by the Department of Commerce investigations into average wholesale and retail mark-up in New York City.

Source: *Fifteenth Census of the United States*, wholesale figures from Vol. II, *Wholesale Distribution*, p. 1007, et. seq.; retail figures from Vol. I, *Retail Distribution*, part 2, p. 215, et. seq.

Total sales for the year 1929 were 1,426.9 millions of dollars, and the value of food stocks at prices to consumers held at the end of the year were, roughly, 228.4 millions of dollars. Thus, 16 percent of the year's sales were held in stocks at the date the survey was made. This is equivalent to about 58 days' or approximately 2 months' supply of food on hand.

Approximately the same result was obtained by making use of the findings of a report by the Port of New York Authority called *Food Supply of the Port of New York District* for the metropolitan district in 1922. The length of time of the supply for the various items of food given in this report varied from meat, of which there was only a week's supply in storage, to eggs, of which there was at most a 3 months' supply. On the average, it was found by a study of the detailed items that a 45 days' supply of food was on hand in the New York metropolitan district in 1922.

The estimate of a 2 months' supply is a conservative one in view of the fact that there is such a great variation in the supply of specific food items. Milk is shipped in daily and fresh eggs and meat at short intervals. Canned goods and packaged fancy groceries on the other hand might be stored in wholesalers' warehouses for long periods. Furthermore, the supply of some specific commodities varies greatly with the season

of the year, so that the estimate of the food supply on hand would be different for the different months of the year.

## 2. Loss in Potential Real National Income Due to Depression Unemployment of Men and Machines, 1930-37

In chart I of chapter I, real national income produced in the United States is shown for the years of the period 1920 to 1937. The line showing potential real national income was obtained by connecting with a compound interest curve the average real national income produced for the years of the period 1923-29 (this average being centered at 1926) with an estimated real national income that could have been expected in 1938 at practical full employment. For the purposes of this chart, practical full employment in 1938 was assumed to correspond to a residual unemployment of 2 millions, using an estimated labor force in 1938 of 54.5 millions.<sup>2</sup> The estimated potential real national income in 1938 corresponding to practical full employment is 103.2 billions of 1929 dollars. This figure was derived from total employment calculated at different assumed levels of consumer income shown in table II of the report *Patterns of Resource Use*, National Resources Committee. The index of industrial production corresponding to a residual unemployment of 2 millions was interpolated from table II of the Pattern report to be approximately 147. The real national income produced corresponding to the index of industrial production of 147 was calculated from the following relationship:

$$\begin{aligned} \text{National income produced} &= 1.608 (1.0064)^{\text{year}-1929} \times \\ &\quad (\text{Billions of 1929 dollars}) \\ &\quad (\text{industrial production})^{0.8226} \\ &\quad (1923-25 = 100) \end{aligned}$$

This relationship was derived by the method of least squares, using the logarithmic form, from the data on real national income given in the table below and the Federal Reserve Board index of industrial production for the years of the period 1921 to 1937. The average percent residual<sup>3</sup> for the years of the entire period is 1.4 percent, thus indicating a fairly close relationship between real national income produced and industrial production.

The curve representing potential real national income, obtained by connecting the 1923-29 potential real national income with the calculated 1938 potential real national income, is given by the following compound interest formula:

$$\begin{aligned} \text{National income produced} &= 73.1 (1.029)^{\text{year}-1926} \\ &\quad (\text{Billions of 1929 dollars}) \end{aligned}$$

<sup>2</sup> This estimate is based on a projection of unpublished data on labor force estimated by the National Research Project of the Works Progress Administration. For the data on labor force, see *Patterns of Resource Use*, National Resources Committee, 1938, appendix 2, table 1.

<sup>3</sup> The difference between real national income as calculated from the formula and the actual expressed as a percent of the calculated values.

Table III gives the data on real national income produced and the estimated loss in income due to depression unemployment of men and machines.

TABLE III.—*Loss in potential real national income due to depression unemployment of men and machines, 1930-37*

Year	National income produced <sup>1</sup> (billions of current dollars)	Price of goods <sup>2</sup> (1929=100)	Real national income produced	Potential real national income <sup>3</sup>	Loss due to depression unemployment of men and machines <sup>4</sup>
(Billions of 1929 dollars)					
1919.....	67.5	102.5	65.9	.....	.....
1920.....	68.1	118.1	57.7	61.0	.....
1921.....	59.7	103.9	48.8	63.0	.....
1922.....	58.7	97.2	60.4	65.2	.....
1923.....	68.0	99.9	68.1	67.0	.....
1924.....	67.9	99.9	68.0	68.9	.....
1925.....	72.8	102.0	71.4	71.0	.....
1926.....	74.9	102.7	72.9	73.1	.....
1927.....	73.8	100.9	73.1	75.2	.....
1928.....	77.6	99.8	77.8	77.4	.....
1929.....	84.1	100.0	84.1	79.8	.....
1930.....	68.3	97.3	70.2	82.0	11.8
1931.....	53.8	89.0	60.4	84.5	21.1
1932.....	40.0	80.4	49.8	86.9	37.1
1933.....	42.3	76.6	55.2	89.5	34.4
1934.....	50.1	79.8	62.8	92.3	29.5
1935.....	55.2	81.1	67.5	94.9	27.4
1936.....	63.5	82.3	76.7	97.7	21.0
1937.....	69.8	86.2	81.0	100.5	19.5
Total loss <sup>5</sup> .....	.....	.....	.....	.....	204.7

<sup>1</sup> From 1919-28 based on national income as given in *National Income and Capital Formation*, National Bureau of Economic Research, p. 8. This was made comparable to the Department of Commerce estimates (given in *Survey of Current Business*, June 1938) of national income produced by adjusting for net imputed rent, net government savings, depreciation, and changes in inventory.

<sup>2</sup> National Bureau of Economic Research, *Bulletin 59*: figures for later years furnished by the Bureau: based on prices of capital goods weighted by 1 and Bureau of Labor Statistics cost of living index weighted by 9.

<sup>3</sup> Based on the following compound interest curve obtained from the average of real national income produced for the years of the period 1923-29 (centered at 1926) and the estimate of potential national income in 1938 of 103.2 billions of 1929 dollars associated with a residual unemployment of 2 millions—see text for basis of calculation.

<sup>4</sup> Potential real national income less actual real national income produced.

<sup>5</sup> Due to depression unemployment of men and machines, 1930-37.

## 3. Major Items of Social Expenditures, 1935

The major items of social expenditures shown in chapter II, table IV, are as follows:

The figures for Federal Government expenditures were derived from the 1938 Budget of the United States (data for 1935-36). These expenditures were allocated to the functional break-down given below, excluding the items which did not fall into the categories used.

The figures for State governments were derived by the use of estimates in the report of the Twentieth Century Fund, *Studies in Current Tax Problems, 1937*, showing expenditures for certain functions for 1935-36. A large item "other" was allocated among the remaining functions on the basis of the ratios existing in 1932 as shown in the Census report, *Financial Statistics of States and Local Governments, 1932*.

The figures for local governments were derived by applying to the 1932 data for all local governments the percent changes from 1932 to 1936 shown in various expenditures of 39 large cities. The trend for these 39 cities showed the same relationship as shown for 94 cities between 1932 and 1935. Reports on the 94

cities cover approximately 60 percent of all local governments. The figures on local government expenditures are probably too low.

The following are the categories and sources used:

1. Education—includes expenditures for all schools, including books and supplies; and the promotion of education. The figure for private agencies' contribution to education represents the income received from endowments to institutions of higher learning as reported by the U. S. Office of Education for the school year 1935-36. Private and parochial schools are not included. Individual expenditures are the total expenditures of families and single individuals for education as shown in the National Resources Committee report, *Consumer Expenditures in the United States*.

2. Health and sanitation—includes expenditures for prevention and treatment of diseases; medical and dental work for school children; food regulation; sanitary inspection; and disposal plants. Individual expenditures are the total expenditures of families and single individuals for medical care as shown in the National Resources Committee report, *Consumer Expenditures in the United States*.

3. Recreation—includes expenditures for all recreational facilities, including parks, playgrounds, museums, including projects of the Works Progress Administration in these fields. Individual expenditures are the total expenditures of families and single individuals for recreation as shown in the National Resources Committee report, *Consumer Expenditures in the United States*.

4. Reading—includes expenditures for all libraries for use of the public; also payments to private library associations. Private agencies' contribution was derived as follows: The latest figure for total amount of endowments from individuals to libraries is for 1929. The Bureau of Library Service of the United States Office of Education furnished the figure of \$95,820,560 as the amount of permanent endowment funds. A weighted yield on Treasury, municipal and corporate bonds in 1935 was calculated and applied to the amount of permanent endowments. Individual expenditures represent the amount of total expenditures made by families and single individuals for reading as shown by the National Resources Committee report, *Consumer Expenditures in the United States*.

5. Highways—includes all expenditures for operation and maintenance of public roads, bridges, etc., as reported by the Bureau of Public Roads, United States Department of Agriculture.

6. Charities, hospitals and corrections—includes administrative expenses for supervision of relief and of institutions; expenditures for general hospitals maintained by Federal, State, and local Governments (excluding those for care of insane and feeble-minded) and

probation boards. This does not include payments to persons on relief or living expenses of persons in institutions. Private agencies' contribution was derived as follows: *The Final Report of the Committee on the Costs of Medical Care, 1932*, showed the source of funds for hospitals in 1929 which included an item of 54 million dollars derived from philanthropy. To this figure was added an estimated sum of 65 million dollars as contributions made through private relief agencies. According to a report of the Works Progress Administration, *Trends in Relief Expenditures, 1910-1935*, the total amount of public relief in 1935 amounted to approximately 2,300 million dollars. The ratio of private relief to public relief in 120 urban areas was 2 percent and in 385 rural towns, 4 percent. Weighting these ratios according to total population in urban and rural areas, a ratio of 2.9 percent was derived and applied to the total public expenditures. This figure for private agencies includes payments made to clients.

7. Interest payments—includes expenditures for interest payments on outstanding debt.

8. Churches—This figure represents the amount of gifts made by families and single individuals to churches in 1935-36, based on data from the National Resources Committee report, *Consumer Expenditures in the United States*. Part of the expenditures made by churches from these funds go to foreign missions. In addition to these funds churches derive income from endowments and real estate holdings. No data were available to permit an estimate of these amounts. It has been assumed that these two figures roughly offset one another. Part of contributions to churches go to support of schools and could properly be included under education.

#### 4. Amount and Proportion of Goods and Services by Degree of Durability, 1919-35

In chart IX of chapter II and in subsequent chapters the values of goods and services are presented by years according to the degree of durability. The data on the value of goods were obtained directly from Kuznets, *Commodity Flow and Capital Formation*. The value of services was derived by the National Resources Committee. In this section a description of the method used for deriving the service series is given and a table is presented of the amount and proportion of goods and services by degree of durability.

The series on value of services was derived by estimating the value of services in current dollars and deflating the resulting series by a price index for services. The value of services in current dollars was computed from seven component series and the price index for services was calculated from a weighted average of seven price indexes.

The following series were used as components of the services series:

The first series consists of income produced by the segments included in the services to the consumer. These include private education, personal service, professional service, recreation and amusement, domestic service, and miscellaneous consumer services. The data for income produced for the years of the period 1929-37 were obtained from the United States Department of Commerce, Income Section. For the years of the period 1919-29, income originating from services was obtained from Kuznets, *National Income and Capital Formation, 1919-35*, page 67. These data were adjusted to the Department of Commerce series by the ratio of the two series in 1929.

The second series consists of income from residential telephone service. The data for the years of the period 1926-36 were derived from the Federal Communications Commission, *Third Annual Report*, and represent all types of operating income. For the period 1935-36, 61.3 percent of total operating revenue was from residential telephones. This percentage was assumed to hold for earlier years. The data for the years of the period 1919-25 were obtained by linear extrapolation along a trend line.

The third series is income from residential electric power service. This series was calculated by multiplying the rate per kilowatt-hour by total kilowatt-hours utilized by residential consumers. Rates per kilowatt-hour were computed from the Federal Power Commission, *Trends in Residential Rates, 1924-36*. Rates for 25, 100, and 250 kilowatt-hours were given weights of 7, 2, and 1, respectively, these weights being based on the relative importance of the quantities consumed. The data for the years 1919-23 were obtained by linear extrapolation along a trend line. The data for the years of the period 1926-36 on total kilowatt-hours consumed were obtained from the Edison Electric Institute, *Statistical Bulletin, No. 4*, New York, 1937. For the other years the data were based on Moody's *Public Utilities* and quoted from the *Electrical World*.

The fourth series is railway passenger revenue. Data were obtained from Interstate Commerce Commission, *Statistics of Railways in the United States*, 1936. Data for the year 1936 were obtained from Interstate Commerce Commission monthly statement, *Revenue Traffic Statistics of Class I Railways*, December 1936.

The fifth item is motor-bus revenue. The data for the years 1927-36 were derived from *Bus Transportation*; the data for the years 1919-26 were obtained by linear extrapolation along a trend line.

The sixth series is electric-railways revenue. This was computed from average fare (described below) multiplied by the number of passengers. The source

for number of passengers for the years 1917, 1922, 1927, and 1932 is the census of *Street Railways* and for the intermediate years the source is the American Transit Association. These data are reported in Moody's *Public Utilities*.

The last series is revenue from private first-class mail. These data were obtained from the *Statistical Abstract of the United States* and based on the annual reports of the Postmaster General.

The above seven series were summated and the resulting series was deflated by a price index for services which was constructed from the following component series: (1) Index of price of services to the consumer, (2) residential telephone rates, (3) residential electric power rates, (4) railroad passenger rates, (5) motor bus rates, (6) electric railway rates, and (7) first-class mail rates. These various indexes of price were weighted by the following weights: 9722, 714, 600, 876, 350, 1149, and 627, respectively. These weights were based on the relative values of the various service items in 1929.

The following is the description of sources and methods used for getting the price series:

The index of price of services to the consumer is represented by the Bureau of Labor Statistics' cost of living for "miscellaneous," as reported in *Standard Statistics*, for the years of the period 1920-36. This series includes the cost of such items as reading materials, tobacco, organization dues, medical care, car fare, drugs, toilet articles, etc., but it excludes food, clothing, housing, fuel and lighting, and house furnishings. For the year 1919, the index was estimated from the percent change shown in the two years 1919 and 1920 by the National Industrial Conference Board's index of sundries, as reported in *Standard Statistics*, which is a component of the cost of living index computed by that organization.

Residential telephone rates were computed from data compiled by the Wisconsin Public Service Commission for the years of the period 1926-36.<sup>4</sup> For the years of the period 1919-25 the series was obtained by linear extrapolation along a trend line.

Residential electric power rates, railroad passenger rates, and motorbus rates were obtained from the same sources as the revenue series for the corresponding items. Residential electric power rates and motorbus rates were extrapolated along trend lines for those years for which data were not available.

Electric railway rates consist of an unweighted average of monthly cash fares for street railways or bus service in cities of 25,000 or more population. The number of cities was not constant—320 cities in 1932 and 268 cities in 1936. These data were compiled by the American Transit Association, formerly the American Street Railway Association, and published in the

<sup>4</sup> See appendix IV, table V, of this report

annual supplement of the *Survey of Current Business*, United States Department of Commerce.

Finally, the index of first-class mail rates covers local letters, nonlocal letters, and private cards, weighted by value in 1929 as follows: 103, 258, and 3, respectively. Data are published in the *Statistical Abstract of the United States* and from annual reports of the Postmaster General.

Table IV gives the value and price of services resulting from the procedure described above:

TABLE IV.—Value of services, 1919-36

Year	Value in current dollars (millions)	Price of services (1929=100)	Value in 1929 dollars (millions)	Year	Value in current dollars (millions)	Price of services (1929=100)	Value in 1929 dollars (millions)
1919	8,565	90.1	9,506	1928	13,475	99.5	13,543
1920	9,461	98.9	9,569	1929	14,038	100.0	14,038
1921	8,858	90.6	8,894	1930	13,044	100.7	12,953
1922	9,887	97.9	10,099	1931	11,268	99.2	11,358
1923	10,780	97.6	11,045	1932	9,072	97.9	9,266
1924	11,407	98.0	11,639	1933	8,509	95.9	8,872
1925	12,194	98.6	12,367	1934	9,403	95.0	9,808
1926	12,895	99.2	12,999	1935	10,162	95.1	10,686
1927	12,828	99.0	12,957	1936	11,187	94.5	11,838

Source: See description of method given above.

The amount and proportion of goods and services by degree of durability are presented in table V.

TABLE V.—Amount and proportion of goods and services by degree of durability 1919-35

(In millions of 1929 dollars)								
Year	Public works	Business construction	Producers, durable	Consumers, durable	Semi-durable	Non-durable	Services	Total
1919	1,439	2,776	4,633	5,821	7,599	20,030	9,506	51,804
1920	1,275	2,476	4,755	5,707	6,616	21,143	9,569	51,521
1921	1,719	2,221	3,303	4,580	7,907	22,051	8,894	50,675
1922	2,020	2,973	3,858	5,819	8,954	22,827	10,099	56,550
1923	1,666	3,186	5,058	7,522	9,861	23,732	11,045	62,070
1924	2,022	3,408	4,838	7,873	9,173	25,576	11,639	64,529
1925	2,347	4,027	5,968	8,817	10,145	25,638	12,367	68,559
1926	2,306	4,325	5,761	9,752	10,112	26,635	12,999	71,960
1927	2,641	4,467	5,993	9,364	11,502	27,164	12,957	74,088
1928	2,871	4,391	6,083	9,555	11,513	27,156	13,543	75,112
1929	2,929	4,581	6,901	9,894	12,135	28,188	14,038	78,955
1930	3,120	3,884	5,791	7,875	10,892	27,970	12,953	72,485
1931	2,899	2,481	4,012	6,577	10,716	26,680	11,358	64,733
1932	2,440	1,352	2,601	4,704	9,742	26,342	9,266	56,127
1933	2,222	1,196	2,779	4,645	8,872	27,325	8,872	55,841
1934	2,950	1,403	3,714	5,259	9,206	26,920	9,808	59,350
1935	2,963	1,741	4,312	6,756	10,176	26,215	10,686	62,849

## PERCENTAGE DISTRIBUTION

1919	2.8	5.4	8.9	11.2	14.7	38.7	18.3	100.0
1920	2.5	4.4	9.2	11.1	12.8	41.0	18.6	100.0
1921	3.4	4.4	6.5	9.0	15.6	43.5	17.6	100.0
1922	3.6	5.3	6.8	10.3	15.8	40.3	17.9	100.0
1923	2.7	5.1	8.1	12.1	15.9	38.3	17.8	100.0
1924	3.3	5.3	7.5	12.2	14.2	39.7	18.0	100.0
1925	3.4	5.9	7.8	12.9	14.8	37.1	18.1	100.0
1926	3.2	6.0	8.0	13.5	14.2	37.0	18.1	100.0
1927	3.6	6.0	8.1	12.6	15.5	36.7	17.5	100.0
1928	3.8	5.8	8.1	12.7	15.3	36.3	18.0	100.0
1929	3.7	5.8	8.7	12.5	15.4	36.1	17.8	100.0
1930	4.3	5.4	8.0	10.9	15.0	38.5	17.9	100.0
1931	4.5	3.8	6.2	10.2	16.6	41.2	17.5	100.0
1932	4.3	2.4	4.6	8.3	17.3	46.7	16.4	100.0
1933	4.0	2.1	5.0	8.3	15.9	48.8	15.9	100.0
1934	5.0	2.4	6.3	8.9	15.5	45.3	16.6	100.0
1935	4.7	2.8	6.9	10.7	16.2	41.7	17.0	100.0

Source: Kuznets, Simon, *Commodity Flow and Capital Formation*, table VIII-2, for all items except services which are estimated by National Resources Committee and described above.

## 5. Estimates of National Wealth by Major Segments of the Economy, 1935

In chapters III and V several tables and charts are given which are based on estimates of national wealth for 1935.

In this section a brief description is given of the methods used, (1) in estimating total national wealth and the wealth attached to major segments of the economy, and (2) in estimating the value of buildings and equipment. For purposes of this report the national wealth is measured by the value of land, buildings, equipment, and inventories.

*It is to be emphasized that these estimates are extremely crude and should be used with utmost caution. They do not represent an effort to make precise estimates, only efforts to give crude approximations, so as to be able to make a rough comparison between the relative magnitude of the wealth employed or controlled in different segments.*

The estimate of total national wealth was derived by estimating the wealth of the major segments of the economy. A brief description of the methods used for estimating the wealth of each segment considered follows.

The estimate of wealth held by the Federal Government was derived by adding to the Federal gold holdings in 1935 the amount of Federal Government wealth, exclusive of gold, as estimated by the Federal Trade Commission for 1922, plus the expenditures for plant and equipment, repairs and alterations, lands and structures and parts as shown in the reports of the Bureau of the Budget for the years 1923 to 1935 and deducting depreciation on equipment and buildings, both for those in use in 1922 and those acquired in the subsequent years. A depreciation of 15 percent a year was assumed for equipment and a depreciation of 3 percent a year for buildings. Because of the complexity of Federal Government accounts, the figures for wealth other than gold can be only very approximate.

The wealth held by State and local governments, exclusive of educational facilities, was estimated by adding to the 1922 figures for State and local governments, as estimated by the Federal Trade Commission, the amount of net receipts from bond sales by State and local governments for each year as reported by the *State and Municipal Compendium*, plus Public Works Administration and Reconstruction Finance Corporation grants by the Federal Government to State and local governments from 1933 to 1935, and deducting an annual depreciation charge of 3 percent a year on the value of improvements and that portion of the wealth allocated to education. Improvements were assumed to bear the same ratio to land as shown in the estimates for 1922. The resulting estimate is very much less reliable than that for the Federal Government.



In the case of manufacturing, total wealth was estimated by adjusting the value of total fixed assets and inventories of corporate manufacturing concerns which is reported in the *Statistics of Income*, 1935, for noncorporate assets. This was accomplished by applying the ratio of corporate to total value added by manufacture, i. e., 92 percent, as computed from the *Census of Manufactures*, 1929.

The total wealth of wholesale and retail trade was estimated by adjusting the value of total fixed assets and inventories of wholesale and retail corporations as reported in *Statistics of Income*, 1935, for noncorporate assets, by applying the ratio of corporate net sales to total sales in wholesale and retail trade as shown by the *Census of Distribution*, 1929, or 63 percent.

To estimate the total wealth of mining, the total fixed assets and inventories of corporate mining enterprises as reported in *Statistics of Income*, 1935, was adjusted for noncorporate assets by applying the ratio of corporate value of product to the total value of product of mining concerns, i. e., 96 percent, as reported in the *Census of Mines and Quarries*, 1929, page 14.

The wealth of the construction industry was estimated by adjusting the value of total fixed assets and inventories of corporate construction concerns as reported in the *Statistics of Income*, 1935, for noncorporate assets, by applying the ratio of the value of work done by corporations to total contract construction work done or 60 percent, as reported in the *Census of Business, Construction Industry*, 1935, volume 3, page 34.

In the case of finance, the assets and inventories of corporate financial institutions were adjusted for noncorporate assets by applying the estimated ratio of business done by corporate financial institutions to total business done by financial institutions in 1935, or 84 percent. This ratio was estimated by the Bureau of Foreign and Domestic Commerce and appears in the published *Verbatim Record of the Proceedings of the Temporary National Economic Committee*, volume 1, No. 2, section 1, December 2, 1938, page 64.

The total wealth of the service group was estimated by adjusting the corporate value of total fixed assets and inventories of the service group as given in *Statistics of Income*, 1935, for noncorporate assets by applying the estimated ratio of business done by corporate service concerns to total business done, or 30 percent. This ratio was estimated by the Bureau of Foreign and Domestic Commerce and appears in the published *Verbatim Record of the Proceedings of the Temporary National Economic Committee*, op. cit., page 64. To this estimate was added the value of public educational facilities amounting to 6,737 millions of dollars. This figure was obtained from the Office of Education, Department of Interior.

The total wealth of the utilities segment was esti-

mated as follows: It was assumed that all of the utilities groups, with the exception of the auto, bus, and truck transport group, are 100 percent corporate. The total fixed assets and inventories of the corporate utilities were obtained from the *Statistics of Income*, 1935, and amounted to 50.2 billion dollars. It was estimated that the wealth of the auto transport group, corporate and noncorporate, amounted in 1935 to about 2.3 billion dollars. This estimate of auto transport wealth was based on the reported investment in plant and equipment for the commercial motor bus industry as shown in the *Census of Business*, 1935, raised to include trucks on a basis of the ratio of the number of buses produced as published in the report of the Automobile Manufacturers Association, *Bus Transportation*, to total for-hire-trucks reported in the *Census of Business*. It was next assumed that 50 percent of the wealth of the auto transport group or approximately 1.2 billion dollars was noncorporate. Finally, the estimated noncorporate value of fixed assets and inventories of the auto transport group, i. e., 1.2 billion dollars was added to the corporate value of fixed assets and inventories of the utilities group given in the *Statistics of Income*, i. e., 50.2 billion dollars, which gives an estimated figure of 51.4 billion dollars for the total wealth of the utilities group.

TABLE VI.—*Estimate of value of residential buildings in the United States in 1935*

Number of owned nonfarm homes, 1930 (thousands) <sup>1</sup> ...	10, 503
Average value of owned homes, 1930 <sup>2</sup> .....	\$6, 100
Number of rented nonfarm homes, 1930 <sup>1</sup> (thousands) ..	12, 352
Average rental nonfarm homes, 1930 <sup>2</sup> .....	\$33. 25
Average value of rented homes, 1930 <sup>3</sup> .....	\$3, 990
Value of owned homes, 1930 (billions of dollars) <sup>4</sup> .....	66
Value of rented homes, 1930 (billions of dollars) <sup>4</sup> .....	49
Value of residential buildings, 1930 (billions of dollars) ..	115
Depreciation allowance from 1930-35 (billions of dollars) <sup>5</sup> .....	14
Depreciated value in 1935 expressed in 1930 dollars (billions) .....	101
Decline in value from 1930 to 1935 (billions of dollars) <sup>6</sup> ..	20
Value of residential buildings existing in 1930, expressed in 1935 dollars (billions) .....	81
Residential new construction since 1930 (billions of dollars) <sup>7</sup> .....	3
Value of residential buildings, 1935 (billions of dollars) ..	84
Estimated value of residential buildings (billions of dollars) .....	70-90

<sup>1</sup> Bureau of the Census, Department of Commerce, as given in *Statistical Abstract of the United States*, 1937, p. 50.

<sup>2</sup> Computed by graphical method from distribution of nonfarm homes according to value or monthly rental as given in locus cited above.

<sup>3</sup> Assuming that value is 10 times rental.

<sup>4</sup> Number of owned or rented nonfarm homes times average value.

<sup>5</sup> Assuming that 60 percent of value of land and buildings is value of buildings and that the average depreciation in 1930 is 50 percent and that depreciation is at rate of 2 percent per annum of the original value.

<sup>6</sup> Computed on the assumption of a 20 percent decline in residential building costs from 1930 to 1935.

<sup>7</sup> Based on estimates given in *Construction Industry in the United States, 1901-37*, U. S. Department of Commerce, p. 12; represents cumulated value of such construction for the years 1931-35.

The figures for Agriculture were taken directly from the *Census of Agriculture, 1935*, and include value of land, buildings, equipment, and livestock.

The estimate for value of residential housing is very crude. It was derived essentially by multiplying the average value of owned and rented homes by the number of homes reported by the Bureau of Census for 1930, as indicated in table VI. Because the estimate amounts to such a large item and because it is so crude it is given below as a bracket.

The value of personal property in 1935 was estimated by summing the value in the hands of consumers of semidurable goods and consumer durable goods including passenger automobiles. These estimates were based on annual data on commodity flow as given by Simon Kuznets, *Commodity Flow and Capital Formation*. Table VII shows the procedure used in computing the estimates.

In table VIII there is presented the estimated total national wealth by segments. The estimates for the segments have been derived from the sources cited above. However, the estimates are crude approximations and should be considered as such. For instance, the combined Government and finance segments are estimated to amount to 65.5 billion dollars, but have a

possible range of from 60 to 70 billion dollars. Similarly, the service segment, which is estimated to be 25 billion dollars, has a range of from 20 to 30 billion dollars due to the crudeness of the estimate caused by the lack of adequate data pertaining to corporate and non-corporate wealth. In the case of the construction segment the possible range is estimated to be from 1 to 3 billion dollars. Residential housing is estimated to range from 70 to 90 billion dollars. Thus, the total national wealth which is estimated to be 365 billion dollars has a possible range of from 345 to 387 billion dollars though the true figure is probably closer to the lower than the higher figure. On the whole the figures are probably overestimates because of the nature of the procedure used for adjusting corporate assets to account for the noncorporate assets; the adjustments were made by the use of ratios which are derived from the operating characteristics of the segment. It may be presumed that the ratios of noncorporate wealth to corporate wealth are lower than the ratios of the measures of certain operating characteristics which are used here in making these estimates. To refer to the total wealth of the country as 350 or 360 billion dollars would indicate the general magnitude of the national wealth.

TABLE VII.—Method of estimating personal property in the United States, 1935

	[Millions of dollars]										
	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	Total
<b>CONSUMERS' DURABLE GOODS</b>											
1. Consumers' durable goods, current prices <sup>1</sup>	9,445	8,800	9,174	9,913	7,550	5,748	3,806	3,882	4,686	5,918	-----
2. Passenger automobiles, current prices <sup>2</sup>	3,163	3,005	3,190	3,351	2,553	1,943	1,287	1,313	1,585	2,000	-----
3. Consumers' durable goods excluding automobiles <sup>3</sup>	6,282	5,795	5,984	6,562	4,997	3,805	2,519	2,569	3,101	3,918	-----
4. Value in 1935 (current dollars) <sup>4</sup>	625	1,177	1,795	2,625	2,498	2,283	1,763	2,055	2,791	3,918	-----
5. Price index (1935=100) <sup>5</sup>	107.9	109.4	110.8	113.0	108.1	101.5	95.6	95.5	101.7	100.0	-----
6. Value in 1935 (1935 dollars) <sup>6</sup>	579	1,076	1,620	2,323	2,311	2,249	1,844	2,132	2,743	3,918	20,815
<b>CONSUMERS' SEMIDURABLE GOODS</b>											
7. Total semidurable goods, current prices <sup>7</sup>	7,563	7,654	7,638	7,721	6,269	5,084	3,651	3,929	-----	-----	-----
8. Dry goods and notions <sup>8</sup>	979	964	923	945	622	542	386	489	-----	-----	-----
9. Consumers' semidurable goods, current prices <sup>9</sup>	6,584	6,690	6,715	6,776	5,587	4,542	3,265	3,440	-----	-----	-----
10. Percent consumers' to total <sup>10</sup>	87.0	87.1	87.9	87.7	88.0	88.3	88.4	87.5	100.0	100.0	-----
11. Sales of total semidurable goods, current prices <sup>11</sup>	12,734	11,911	12,339	12,565	10,444	8,572	6,109	6,235	7,412	8,051	-----
12. Estimated sales of consumers' semidurable goods <sup>12</sup>	11,079	10,410	10,846	11,020	9,484	7,655	5,461	5,456	6,486	7,045	-----
13. Value in 1935 (current dollars) <sup>13</sup>	-----	-----	-----	-----	-----	766	1,658	2,728	4,540	7,045	-----
14. Price index (1935=100) <sup>14</sup>	-----	-----	-----	-----	-----	106.0	87.3	91.8	101.9	100.0	-----
15. Value in 1935 (1935 dollars) <sup>15</sup>	-----	-----	-----	-----	-----	723	1,776	2,972	4,455	7,045	17,071
<b>PASSENGER AUTOMOBILES</b>											
16. Passenger automobiles, current prices <sup>16</sup>	-----	-----	3,190	3,351	2,553	1,943	1,287	1,313	1,585	2,000	-----
17. Value in 1935 (current dollars) <sup>17</sup>	-----	-----	399	838	957	972	804	985	1,387	2,000	-----
18. Price index (1935=100) <sup>18</sup>	-----	-----	105.2	109.2	102.3	97.3	97.0	94.8	101.6	100.0	-----
19. Value in 1935 (1935 dollars) <sup>19</sup>	-----	-----	379	767	940	999	829	1,039	1,365	2,000	8,308
20. Total personal property	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	46,194

<sup>1</sup> Simon Kuznets, *Commodity Flow and Capital Formation*, National Bureau of Economic Research, 1938, line 1a, p. 484.

<sup>2</sup> Represents total sales of passenger automobiles, auto parts and accessories, motorcycles, and bicycles, adjusted for inventory charges. Simon Kuznets, *loc. cit.*

<sup>3</sup> Line (1) minus line (2).

<sup>4</sup> Assuming a constant depreciation at the rate of 10 percent per annum.

<sup>5</sup> Kuznets, *op. cit.*, line 1a, p. 484, divided by line 1a, p. 485, i. e., consumers' durable goods in current dollars divided by consumers' durable goods in 1929 dollars.

<sup>6</sup> Line (4) divided by line (5).

<sup>7</sup> Kuznets, *op. cit.*, p. 146.

<sup>8</sup> Line (7) minus line (8).

<sup>9</sup> Percent of line (9) to line (7).

<sup>10</sup> Assuming no change from 1933.

<sup>11</sup> Kuznets, *op. cit.*, p. 478. Sales to ultimate consumers.

<sup>12</sup> Assuming inventory change of -100 million dollars per annum.

<sup>13</sup> Applying ratio line 10 to line (11).

<sup>14</sup> Applying the cumulative survival ratios: 30 percent of value remains after 1 year, 50, 70, 90, 100 percent remaining after the second, third, fourth, and fifth years, respectively.

<sup>15</sup> Kuznets, *op. cit.*, line 1-1, p. 478, divided by line 1-1, p. 479, i. e., consumers' semidurable goods in current dollars divided by consumers' semidurable goods in 1929 dollars.

<sup>16</sup> Line (13) divided by line (14).

<sup>17</sup> Same as line (2).

<sup>18</sup> Assuming a constant depreciation at the rate of 12.5 percent per annum.

<sup>19</sup> Bureau of Labor Statistics index of automobile prices.

<sup>20</sup> Line (17) divided by line (15).

TABLE VIII.—Wealth by segments of the American economy, 1935

[Figures in billions of dollars]

Total National Wealth.....	365
Government and finance (excluding public education) <sup>1</sup> .....	65
Federal.....	16
Land, buildings, equipment, and inventories (including gold).....	
State and Local: Land, buildings, and equipment, exclusive of public education.....	33
Banking and Finance: Inventories and capital assets.....	16
Utilities.....	51
Services to the consumer (including public education).....	27
Agriculture.....	39
Land and buildings.....	33
Machinery.....	2
Livestock.....	4
Manufacturing: Inventories and fixed capital.....	31
Trade: Inventories and fixed capital.....	13
Mining: Inventories and fixed capital.....	6
Construction: Inventories and capital assets.....	1
Miscellaneous.....	*
Residential Housing.....	84
Personal Property.....	46

\* The miscellaneous segment is estimated to be less than one-half billion dollars and is therefore not included.

<sup>1</sup> The wealth of the finance segment was estimated to be about 16 billion dollars.

NOTE.—The wealth given above for service includes, in addition to value of property of public educational institutions, an estimated value of 5 billions of dollars of privately owned tax-exempt property such as churches, benevolent institutions, schools, libraries, and museums.

The data presented in chart I of chapter III are based on table VIII. In each segment inventories were deducted from the total. To estimate the value of buildings and equipment, it was also necessary to deduct estimates of land values. The division of values between land and other fixed assets was based on data in the Federal Trade Commission's report on *National Wealth and Income* for 1922, for all segments except agriculture, which was estimated on a basis of the ratio of land value to total land and buildings reported in the *Census of Agriculture, 1930*. Table IX gives the total value of plant and equipment for four major seg-

TABLE IX.—Value of plant and equipment for specified segments, 1935

[In billions of dollars]

	Plant		Equipment		Total	
	1935 value	1919-1935 Average annual construction	1935 value	1919-1935 Average annual production	1935 value	1919-1935 Average construction and production
Residential housing.....	50	2,541	.....	.....	50	2,541
Industrial.....	105	2,419	.....	3,533	105	5,952
Agriculture.....	9	0.115	6	0.792	15	1.207
Government.....	119	12,641	.....	.....	119	2,641
Total.....	184,673	.....	6	.....	190	.....

<sup>1</sup> Includes value of equipment which could not be segregated.

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ments. In addition to the value of buildings and equipment for 1935, this table also gives the data from which table III of chapter III was derived. These data in table III were derived by dividing the total value of plant and equipment by the 1919-1935 average annual value of construction and equipment for each segment as estimated by Simon Kuznets of the National Bureau of Economic Research.

Finally, table I of chapter V was derived by dividing the value of land, buildings, and equipment obtained for the specified segments, by the method indicated above, by the equivalent full-time number of workers shown for the corresponding segments in table II of the report, *Patterns of Resource Use*.

## 6. Total Production in the United States, 1863-1937

In chart I of chapter V data on total volume of production are shown for the years of the period 1863-1937. For the period 1920-1937 the national income produced was expressed in terms of 1935 dollars and was based on data obtained from the National Bureau of Economic Research and the Department of Commerce. This is

TABLE X.—Total production in the United States, 1863-1937

[Billions of 1935 dollars]

Year	Total production	Trend of production <sup>1</sup>	Year	Total production	Trend of production <sup>1</sup>
1863.....	3.5	.....	1901.....	24.1	21.8
1864.....	3.9	.....	1902.....	28.0	25.6
1865.....	4.6	.....	1903.....	27.5	26.6
1866.....	5.5	.....	1904.....	28.4	27.5
1867.....	5.9	.....	1905.....	31.5	28.4
1868.....	6.2	.....	1906.....	33.4	29.5
1869.....	6.7	.....	1907.....	32.2	30.6
1870.....	7.0	.....	1908.....	29.4	31.6
1871.....	6.8	.....	1909.....	33.4	32.7
1872.....	7.9	.....	1910.....	34.5	33.9
1873.....	7.9	.....	1911.....	35.8	35.1
1874.....	7.6	.....	1912.....	38.4	36.3
1875.....	8.5	.....	1913.....	37.8	37.7
1876.....	8.5	.....	1914.....	37.5	39.0
1877.....	9.4	.....	1915.....	40.9	40.4
1878.....	10.0	.....	1916.....	43.7	41.8
1879.....	10.7	11.5	1917.....	45.0	43.2
1880.....	12.2	11.9	1918.....	44.6	44.8
1881.....	11.1	12.3	1919.....	43.8	46.4
1882.....	13.4	12	1920.....	47.2	48.1
1883.....	13.3	13.2	1921.....	39.9	49.8
1884.....	13.9	13.7	1922.....	49.4	51.5
1885.....	13.7	14.2	1923.....	55.7	53.3
1886.....	14.5	14.7	1924.....	55.6	55.2
1887.....	14.7	15.2	1925.....	58.4	57.3
1888.....	15.9	15.7	1926.....	59.6	59.3
1889.....	17.1	16.3	1927.....	59.8	61.4
1890.....	16.7	16.9	1928.....	63.6	63.5
1891.....	19.5	17.5	1929.....	66.3	65.8
1892.....	18.3	18.1	1930.....	57.4	.....
1903.....	17.3	18.7	1931.....	49.4	.....
1904.....	17.0	19.4	1932.....	40.7	.....
1905.....	20.2	20.1	1933.....	45.2	.....
1906.....	20.0	20.8	1934.....	51.4	.....
1907.....	21.4	21.5	1935.....	55.2	.....
1908.....	23.2	22.9	1936.....	62.7	.....
1909.....	23.7	23.1	1937.....	66.3	.....
1900.....	23.9	23.9			

<sup>1</sup> Trend values calculated from the formula derived from the data for the years of the period 1879-1929:

Total production = 23.9 (1.035)<sup>year-1860</sup>  
(Billions of 1935 dollars)

Source: For the years 1920-1937 production is represented by national income produced given in section 2 of this appendix and expressed in 1935 dollars.

For the years 1863-1920 from Warren and Pearson, *Physical Volume of Production in the United States 1860-1920* and consists of the index of physical production spliced to the real income produced series by applying the ratio of the two in 1920.

the same series used in chart I of chapter I except that in that chart national income was expressed in 1929 dollars. For the period 1863-1920, the index of physical production as given by Warren and Pearson was adjusted to the real national income produced series using the ratio of the two indexes in 1920.

It is apparent from this long-time series on the volume of production that the annual rate of growth for the period 1863-1879 is greater than for the subsequent period (excluding the recent depression). The fitted trend for the years of the period 1879-1929, however, shows a fairly uniform annual rate of increase of approximately 3.5 percent. This trend line fits the data very well—the residual areas (bounded by the trend line and the straight lines connecting the actual values for successive years) being small and alternating above and below the trend line over relatively short periods. The trend values are calculated from the following equation obtained by the method of least squares applied to the linear logarithmic form and using the data for the years of the period 1879-1929:

$$\text{Total production} = 23.9 (1.035)^{\text{year}-1900},$$

(Billion of 1935 dollars)

Table X shows the actual data on physical production and the corresponding trend values.

## 7. Income Produced by Segments of the American Economy, 1935

Chart IV of chapter V is based on estimates of national income published by the Department of Commerce. The segments include the following industries:

*Government and finance.*—This segment includes Federal, State, and local governments, minus salaries of school teachers which are included under services to the consumer, and receipts of post office which are included under utilities; also included are banks, insurance companies, and real estate, minus brokerage and building and loan associations transferred to miscellaneous, and "net rentals received by individuals" transferred to services to consumers.

*Utilities.*—This segment includes the following industries which are defined in the publication of the Department of Commerce, *National Income, 1929-35*, namely, electric light and power, gas, transportation, communication and post office, which is excluded from government.

*Services to the consumer.*—This segment is defined as in the publication of the Department of Commerce, referred to above. To the income produced is added "net rentals received by individuals" and salaries of school teachers—the latter was subtracted from income produced by government.

*Agriculture.*—This segment is the same as that defined in the publication of the Department of Commerce, referred to above.

*Manufacturing.*—This segment is the same as the corresponding segment defined in the publication of the Department of Commerce, *National Income, 1929-35*. To the income produced by the segment was added the shipbuilding industry.

*Trade.*—Same as definition given in Department of Commerce publication.

*Minerals.*—This segment is the same as the definition of "Mining" given in the publication of the Department of Commerce.

*Miscellaneous.*—Same as the definition given in the Department of Commerce publication. To the income produced by this segment was added income produced by brokerage houses and building and loan associations.

*Construction.*—This segment is the same as the corresponding segment defined in the publication of the Department of Commerce, except for the shipbuilding industry which was transferred to the manufacturing segment.

## 8. The Distribution of the Food Dollar, 1935

The estimated distribution of the food dollar is a crude approximation of the shares going to retailers, wholesalers, transportation agencies, processors, and farmers. The estimates were derived in the following manner:

*Farmer's share.*—Cash income from farm marketing, not including cotton, was 5,638 million dollars in 1935. The value of exports of edible farm products was \$56,572,000 in that year. This figure was reduced by 20 percent to allow for mark-up between farmer and exporter and the result subtracted from cash income, leaving a balance of 5,593 million dollars as the farmer's share of consumer food expenditures.

*Processors' share.*—The "value added by manufacture" for all food industries in 1935 was 2,789 million dollars. The total value of products of the food industries in 1935 was 9,510 million dollars. Exports of manufactured foods were valued at 150 million dollars or 1.8 percent of total value of manufactured foods. This ratio was applied to the value added to estimate that part represented by exports and the value added was reduced by this amount (50 million dollars) leaving a balance of 2,739 million dollars as the processors' share of food expenditures.

*Wholesalers' share.*—The expenses of all food wholesalers as reported in the *Census of Business, 1935*, were totaled. To this figure of 1,055 million dollars was added 177 million dollars representing profits of wholesalers. The Federal Trade Commission's report on *Retail Price Maintenance* shows profits of wholesale grocers to be 1.6 percent of net sales in 1926. This ratio was applied to the total sales of all food wholesalers as reported in the *Census of Business, 1935*, to obtain estimated profits of 177 million dollars.

**Retailer's share.**—The expenses of food stores, eating and drinking places, and beer and liquor stores were added. Expenses in connection with food sales of other stores were estimated by use of the commodity sales of retailers published for 1929. General stores with food, drug stores, and food and general merchandise stores showed sales of food in 1929. The ratios of these sales were applied to the sales of these stores in 1935. Expenses were obtained by applying the expense ratio of each of these kinds of stores to their estimated food sales. Total receipts of all hotels were broken into sales of meals and beverages and other receipts by use of the ratio of meals and beverages to total receipts of those hotels reporting the break-down. The expense ratio of eating and drinking places were used to derive expenses of hotels for meal and beverage sales. To the total estimated expenses of all these groups was added a profit of 5 percent on net sales of food and meals.

**Transportation.**—The Interstate Commerce Commission reported freight revenue on individual commodities transported by rail in 1936. Revenue on food products amounted to 646 million dollars in 1936. These products were divided into agricultural, animal, and manufactured products. Each of these groups was reduced by the ratio which was shown for the total of those groups in 1935 to the total in 1936 giving an estimated figure of 582 million dollars for freight revenue on food products in 1935. The Bureau of Agricultural Economics, Department of Agriculture, estimated that the truck revenues from food products approximated 25 percent of the rail revenue or 145 million dollars. Thus, transportation's share of food expenditures amounted to 728 million dollars in 1935.

**Summary.**—Total expenditures of food would approximate the amounts received by farmers, the expenses and profits of manufacturers, wholesalers, and retailers of food, and costs of transportation. The estimated total of 13,629 million dollars in 1935 is distributed as follows:

	Millions	Percent
Farmers' share.....	85,593	41.1
Processors' share.....	2,739	20.1
Wholesalers' share.....	1,232	9.0
Retailers' share.....	3,337	24.5
Transportation.....	728	5.3
Total.....	13,629	100.0

The total food expenditures estimated in the National Resources Committee report, *Consumer Expenditures in the United States*, amounted to 14,753 million dollars. Since this figure is based on a sample, which is weighted heavily with low-income families, an upward bias probably exists in food expenditures. On the other hand, sales of food by retailers, and sales of food products to consumers by

manufacturers and wholesalers as shown by the *Distribution of Sales by Manufacturing Plants, 1935*, and the *Census of Business, 1935*, amounted to 12,968 million dollars. The figure used in the estimate of the distribution of the food dollar is between these two extremes.

## 9. Consumer Income and New Nonfarm Dwelling Units Built, 1920-36

Chart XIV of chapter V is based on the data given in table XI.

TABLE XI.—Consumer income and new nonfarm dwelling units built, 1920-1936

Year	Consumer income (billions of 1936 dollars) <sup>1</sup>	New nonfarm dwelling units built (000's) <sup>2</sup>	Year	Consumer income (billions of 1936 dollars)	New nonfarm dwelling units built (000's)
1920.....	47.0	217	1929.....	65.3	509
1921.....	42.3	449	1930.....	60.4	286
1922.....	48.8	716	1931.....	54.6	212
1923.....	54.8	871	1932.....	46.7	74
1924.....	55.4	803	1933.....	48.2	54
1925.....	57.0	937	1934.....	54.0	55
1926.....	58.3	849	1935.....	56.9	144
1927.....	58.9	810	1936.....	63.9	282
1928.....	62.2	753			

<sup>1</sup> Consumer income based on the National Bureau of Economic Research data on income paid out to individuals for the years 1929-38 and on the Department of Commerce data on national income paid out, plus noncorporate business savings for the years 1920-36; the value series was deflated by the cost of living index of the Bureau of Labor Statistics.

<sup>2</sup> New nonfarm dwellings, National Bureau of Economic Research, *Bulletin No. 65*, September 1937, by David L. Wickens and Ray Foster.

## 10. Unit Labor Requirement in Agriculture, 1920-36

In chapter V, chart XVI, the unit labor requirements are shown for various specified industries. In all cases except agriculture the source of the data is *Technological Trends and National Policy*, National Resources Committee, June 1937, table 8, page 77. For agriculture table XII shows the data used.

TABLE XII.—Index of unit labor requirement in agriculture, 1920-36

Year	Unit labor requirement <sup>1</sup> (1920=100)	Year	Unit labor requirement <sup>1</sup> (1920=100)
1920.....	100	1929.....	94
1921.....	117	1930.....	96
1922.....	109	1931.....	87
1923.....	106	1932.....	92
1924.....	103	1933.....	97
1925.....	98	1934.....	114
1926.....	95	1935.....	99
1927.....	98	1936.....	104
1928.....	93		

<sup>1</sup> Obtained by dividing indexes of total agricultural employment by agricultural production. The indexes of employment are given in the report of the Works Progress Administration, National Research Project, *Trends in Employment in Agriculture, 1916-1936*. Indexes of production were obtained from *Trends in Size and Production of the Aggregate Farm Enterprise*, Works Progress Administration National Research Project, Report No. 8.

## 11. National Income Paid Out, 1919-37

Charts I, II, III, and IV, presented in chapter VI, are based on data supplied by the National Income

Section of the Bureau of Foreign and Domestic Commerce, Department of Commerce, and the National Bureau of Economic Research. The data on which charts I, III, and IV are based are presented in table XIII. The classification of industrial segments used in chart II is according to the definitions given in the National Resources Committee report, *Patterns of Resource Use*. The basic data, however, were compiled and published by the Department of Commerce in *National Income, 1929-35*. Since the classifications given in the publication of the Department of Commerce differ from those given in the *Patterns of Resource Use*, certain adjustments were made. These adjustments were limited by the break-downs of the basic data and not all of the adjustments performed on the material on income produced could be made to these data. The data in chart II of chapter VI are, therefore, not quite comparable with those in chart IV of chapter V.

In order to make the classifications comparable to those in the chart on income produced, the following changes are indicated by the segment definitions: Post office and public education should be removed from the Government segment and added to the totals for railroads and utilities, and services to the consumer, respectively. Brokerage houses, building and loan companies, and realty companies should be subtracted from finance and added to miscellaneous and services to the consumer, respectively. Shipbuilding should be shifted from construction to manufacturing. These changes in classification were made, with the following exceptions. The detailed break-down, by industrial group, for dividends, interest, rent, royalties, was not available. Therefore, this type of income paid out was not quite accurately distributed. Post office and public education could not be separated from the rest of the Government segment and added to utilities and services to the consumer, respectively. Rent and interest on bonds for these items are probably large; hence this type of income paid out by the Government segment is overstated and utilities and services to the consumer understated. Similarly, shipbuilding could not be separated from construction and added to manufacturing, and brokerage could not be shifted from finance to miscellaneous.

The other two types of income paid out, i. e., to employees and entrepreneurs, are comparable to the totals for income produced. More detailed break-downs were available than in the case of dividends and interest, and the corresponding changes in classification were made. A small subclassification under finance, realty companies, was not separable from finance for any type of income paid out, but the resulting error is probably insignificant.

As in the case of income produced all net rents and

royalties were put into services to the consumer. Social security contributions by employees were included in miscellaneous salaries and wages. Work relief was included in salaries and wages paid by government.

## 12. Derivation of Indexes of Consumer Expenditures and Consumer Income, 1929-1938

In chapter VI a chart is presented on which appears an index of consumer expenditures and an index of consumer income for the years of the period 1929 to 1937. The index of consumer income was derived from data published by the Department of Commerce and consists of income paid out, plus noncorporate business savings. The index of consumer expenditures, on the other hand, was derived from data obtained from numerous sources. Unfortunately, the data from which an index of consumer expenditures could be derived are

TABLE XIII.—Amount and proportion of national income paid out, 1919-1937<sup>1</sup>

[In millions of dollars]						
Year	Wages and salaries <sup>2</sup>	Entrepreneurial withdrawals <sup>3</sup>	Dividends	Interest	Rents, royalties and balance of international payments	Grand Total
1919.....	36,146	11,958	2,895	2,925	2,455	56,379
1920.....	42,667	13,838	3,215	3,279	2,767	65,766
1921.....	34,423	10,268	2,932	3,410	2,246	53,279
1922.....	36,659	10,224	3,006	3,335	3,497	56,921
1923.....	42,255	11,165	3,825	3,772	3,651	64,668
1924.....	42,494	11,356	3,762	3,997	3,917	65,526
1925.....	44,494	11,648	4,362	4,249	3,920	68,672
1926.....	46,985	11,804	4,736	4,410	3,655	71,590
1927.....	47,204	11,781	5,095	4,678	3,471	72,170
1928.....	48,717	11,940	5,362	4,976	3,591	74,586
1929.....	51,509	12,296	5,978	5,202	3,569	78,554
1930.....	47,551	11,581	5,801	5,393	2,965	73,291
1931.....	40,188	9,848	4,335	5,255	2,366	62,692
1932.....	31,563	6,887	2,745	5,019	1,811	49,025
1933.....	29,596	7,214	2,209	4,710	1,587	45,316
1934.....	34,051	8,021	2,793	4,862	1,783	51,510
1935.....	36,679	8,729	3,038	4,725	1,966	55,137
1936.....	41,906	9,565	4,284	4,652	2,179	62,586
1937.....	46,728	10,441	5,010	4,656	2,496	69,331

### PERCENTAGE DISTRIBUTION

Year	Wages and salaries <sup>2</sup>	Entrepreneurial withdrawals <sup>3</sup>	Dividends	Interest	Rents, royalties and balance of international payments	Grand Total
1919.....	64.1	21.2	5.1	5.2	4.4	100.0
1920.....	65.0	21.0	4.9	5.0	4.1	100.0
1921.....	64.6	19.3	5.5	6.4	4.2	100.0
1922.....	64.4	18.0	5.3	6.2	6.1	100.0
1923.....	65.4	17.3	5.9	5.8	5.6	100.0
1924.....	64.9	17.3	5.7	6.1	6.0	100.0
1925.....	64.7	17.0	6.4	6.2	5.7	100.0
1926.....	65.6	16.5	6.6	6.2	5.1	100.0
1927.....	65.4	16.3	7.0	6.5	4.8	100.0
1928.....	65.3	16.0	7.2	6.7	4.8	100.0
1929.....	65.6	15.7	7.6	6.6	4.5	100.0
1930.....	64.9	15.8	7.9	7.4	4.0	100.0
1931.....	64.8	15.9	7.0	8.5	3.8	100.0
1932.....	64.4	16.1	5.6	10.2	3.7	100.0
1933.....	65.3	15.9	4.9	10.4	3.5	100.0
1934.....	66.1	15.6	5.1	9.4	3.5	100.0
1935.....	66.5	15.8	5.5	8.6	3.6	100.0
1936.....	67.0	15.3	6.8	7.4	3.5	100.0
1937.....	67.4	15.1	7.2	6.7	3.6	100.0

<sup>1</sup> Source: 1919-28, National Bureau of Economic Research; 1929-37, Department of Commerce, Bureau of Foreign and Domestic Commerce. National Bureau figures spliced onto Commerce figures upon basis of 1929 ratio.

<sup>2</sup> Includes work relief wages, employers' contribution to social security, and other labor income.

<sup>3</sup> National Bureau estimates adjusted to segregate entrepreneurial withdrawal from salaries and wages in service and miscellaneous industries on basis of average ratio of those items to total income, 1930-35 in Commerce estimates.

far from complete and certain glaring omissions necessarily result. However, with the available data it has been possible to construct an index representing roughly the volume of consumer expenditures. The purpose of this section is to discuss briefly the series composing the final index, the sources from which they were obtained, and the manner in which they were combined.

All of the series which were used represent direct purchases of goods or services by consumers.

There are 13 general series incorporated in the final index; these cover the following items: (1) chain-grocery sales, (2) department-store sales, (3) rural general-store sales, (4) variety-store sales, (5) automobile sales, (6) restaurant sales, (7) gasoline sales, (8) natural and manufactured gas sales, (9) electric light and power revenues, (10) telephone revenues, (11) transit fares, (12) railroad passenger revenues, and (13) hotel receipts (excluding meals).

The index of chain-store sales was computed by the Department of Commerce from sample data supplied by chain grocery stores whose sales amounted to about 75 percent of the total grocery chain-store business. The index of department-store sales was computed by the Board of Governors of the Federal Reserve System from reports received from a large number of department stores located in various parts of the country. The index of rural retail sales was derived from the mail-order sales of three large mail-order houses and the store sales of a general merchandise chain whose business is predominantly rural. The index of variety-store sales was computed by the Department of Commerce from reports of seven chains covering identical stores doing more than 75 percent of the total business of chain units in this field. The index of automobile sales was based on the index of new passenger-car sales computed by the Department of Commerce; this was modified by data on financing of new and used cars in order to estimate total sales of all automobiles. The index of restaurant sales is a composite index based upon two separate indexes representing the sales of chain restaurants and hotel restaurants. Chain restaurant sales are represented by the combined sales of restaurants operated by the Childs Company, J. R. Thompson Company, and the Waldorf System, Inc.; while the index of hotel restaurant sales was based on data compiled by Horwath and Horwath from reports of a large number of hotels, transient and residential, throughout the country. The index of gasoline sales was specifically computed from data compiled by the American Petroleum Institute representing the quantity of gasoline sold or offered for sale as reported by wholesalers and dealers under provisions of the gasoline tax or inspection laws.

The index of sales of natural and manufactured gas

was based on data compiled by the American Gas Association. The index of electric power and light revenues was based on data compiled by the Edison Electric Institute, from reports representing over 90 percent of the industry. The index of telephone revenues was based upon data compiled by the Interstate Commerce Commission through 1933, and thereafter by the Federal Communications Commission. The index of transit fares was based upon data compiled by the American Transit Association after 1932, prior to that date by the American Electric Railway Association. The index of railroad passenger revenues was based on data compiled by the Interstate Commerce Commission from reports of all class I railroads exclusive of switching and terminal companies. The index of hotel receipts was based upon data compiled by Horwath and Horwath from reports of a large number of hotels located throughout the country.

The various indexes listed above were combined into a single index representative of consumer expenditures. This was accomplished by using a system of weights based on the proportion of sales of each series to total sales as indicated by Census Bureau data for 1929.

Table XIV gives the index of consumer income and of consumer expenditures for the years of the period 1929-38. The table also gives the estimated value of consumer expenditures for each year of the same period. These values were employed in table VI of chapter VI and chart XII of chapter VI.

TABLE XIV.—*Consumer income and expenditures, 1929-38*

Year	Consumer income <sup>1</sup> (1929=100)	Consumer expenditures	
		Index <sup>2</sup> (1929=100)	Value <sup>3</sup> (millions of dollars)
1929.....	100.0	100.0	62,300
1930.....	90.7	90.8	56,568
1931.....	74.9	80.0	49,840
1932.....	57.9	65.5	40,806
1933.....	56.2	62.9	39,187
1934.....	65.3	69.7	43,423
1935.....	70.5	76.7	47,774
1936.....	80.6	85.0	52,955
1937.....	88.3	89.9	56,008
1938 <sup>4</sup> .....	80.7	82.5	51,398

<sup>1</sup>Based on national income paid out plus noncorporate business savings estimated by the Department of Commerce.

<sup>2</sup>Obtained as described in the text above.

<sup>3</sup>Obtained by applying the index of consumer expenditures to the value of consumer expenditures for 1935-36 of \$50,214,000 as given in the report of the National Resources Committee, *Consumer Expenditures in the United States*. The index of consumer expenditures for the year July 1935 to June 1936 is 80.6 (1929=100), obtained from monthly indexes derived by the method described above.

<sup>4</sup>Partly estimated.

### 13. Major Money Flows in the American Economy, 1929

Wassily W. Leontief prepared a table which shows the flow of goods from each major segment of the economy to other major segments in terms of money values appropriately representing such flows for 1929. A description of the terms used and of the procedure employed

in the preparation of the table is given in appendix 17. In this section a brief discussion is given of the modifications made in summarizing Leontief's table so as to cover much broader segments of the economy. The resulting summary is shown in table II and chart VI of chapter VI.

Each entry in table II of chapter VI has been obtained from table I of appendix 17 by summing the approximate items included within the respective segment associated with the entry. However, a few additional modifications were made which consisted in adding three new segments not appearing in Leontief's table.

The three additional segments are Government, financial enterprises, and trading enterprises. For Government and finance only one entry has been made, i. e., income received by consumers. This is income paid out estimated by the National Income Section, U. S. Department of Commerce.

The introduction of trading enterprises as an additional segment affects some of the entries in the segment for consumer expenditures. (Leontief's "consumption" item.) The following list gives a description of the entries related to trading enterprises:

(1) Money received by agricultural enterprises from consumption, as shown by Leontief, was allocated between sales to trading enterprises and direct sales to consumers on the assumption that 10 percent of farm sales were direct sales to consumers. (See Simon Kuznets, *Capital Formation and Commodity Flow*, p. 172.)

(2) It is assumed that all sales of mining enterprises went directly to trade and Leontief's figure on money received by mining enterprises from consumption was transferred to trade.

(3) The amount received by manufacturing enterprises direct from consumers was obtained by applying the ratio of sales by manufactures direct to ultimate consumers to the total cost of finished commodities to ultimate consumers (see Kuznets, loc. cit., p. 206) to the total summated items representing money received by manufacturing from consumption as obtained from Leontief's table. This figure subtracted from Leontief's total resulted in the amount received by manufacturing enterprises from trading enterprises.

(4) The amount received by trading enterprises from trading enterprises consists of sales by wholesalers to retailers of total finished commodities less sales of producers' durable commodities as given in Kuznets (loc. cit., p. 197).

(5) The amount received by trading enterprises from exports was derived from value of total finished commodities exported by wholesalers less exports by wholesalers of producers' durable commodities. (See Kuznets, loc. cit., p. 197).

(6) The amount received by trading enterprises from consumer expenditures consists of total cost of finished commodities to ultimate consumers less cost to ultimate consumers of producers' durable goods as given in Kuznets (loc. cit., p. 205); from this figure were deducted the amounts received by agricultural and manufacturing enterprises from consumer expenditures—see (1) and (3) above.

(7) Leontief's item "amount paid for imports for consumption" was assumed to go through trading enterprises and was allocated to this segment.

(8) The income received by consumers from trading enterprises consists of income paid out plus noncorporate business savings of trading enterprises estimated by the National Income Section, U. S. Department of Commerce.

The items in the column, "money payments not allocated," and the row, "money receipts not allocated," were derived by deducting from the gross total the sum of all the other items appearing in the respective column or row (excluding the item "net total").

#### 14. The Supply of Money of the United States, 1921-1937

Chart VII of chapter VI is based on data furnished by the Division of Research and Statistics of the Board of Governors of the Federal Reserve System. Table XV gives the data on which the chart is based.

TABLE XV.—*The money supply of the United States,<sup>1</sup> 1921-37*  
[Amounts in millions of dollars]

June 30	Adjusted demand deposits in all banks	Money in circulation	Total money	June 30	Adjusted demand deposits in all banks	Money in circulation	Total money
1921.....	17,660	3,698	21,358	1930.....	22,729	3,381	26,110
1922.....	18,464	3,362	21,826	1931.....	20,946	3,670	24,616
1923.....	19,617	3,759	23,376	1932.....	16,275	4,634	20,909
1924.....	20,325	3,672	23,997	1933.....	15,501	4,784	20,285
1925.....	21,920	3,590	25,510	1934.....	18,603	4,684	23,287
1926.....	22,428	3,623	26,051	1935.....	21,754	4,783	26,537
1927.....	23,101	3,579	26,680	1936.....	26,220	5,222	31,442
1928.....	23,256	3,643	26,899	1937.....	26,794	5,509	32,303
1929.....	23,482	3,660	27,142				

<sup>1</sup> Data furnished by the Division of Research and Statistics of the Board of Governors of the Federal Reserve System.

#### 15. Demand Deposits of Single Individuals and Families With Incomes Under \$5,000, December 31, 1935

On page 88 of chapter VI, an estimate is given representing the proportion of total demand deposits held by consumers with incomes under \$5,000. This estimate was derived by making use of two sources, namely, an article by Lauchlin Currie entitled "The Economic Distribution of Demand Deposits," *Journal of American Statistical Association*, June 1938, and a report of the National Resources Committee published in August of 1938 entitled *Consumer Incomes in the United States*.



The procedure used is briefly this: to estimate the total consumer deposits of less than \$100,000 and correct this figure for total consumer deposits of between \$5,000 and \$100,000. The latter totals were estimated on the assumption that these consumers included only those with incomes between \$5,000 and \$100,000 and that their proportion of total consumer deposits was the same as their proportion of total consumer income. The result is necessarily rough since it depends on how closely the assumption fits the actual condition.

Table XVI gives the steps used in making the estimates.

TABLE XVI.—*Demand deposits held by consumers*  
(as of December 31, 1935)

(Figures in millions of dollars)

A. Consumers' and unclassified deposits <sup>1</sup> .....	5, 130
B. Individual accounts over \$100,000 <sup>1</sup> .....	430
C. Accounts not held by consumers <sup>2</sup> .....	1, 049
D. Total consumer deposits of less than \$100,000.....	
A—B—C.....	3, 651
Aggregate income of consumers with incomes of less than \$100,000, 1935–1936 <sup>3</sup> .....	58, 163
Aggregate income of consumers with incomes of between \$5,000 and \$100,000, 1935–36 <sup>3</sup> .....	10, 563
E. Percent.....	18. 16
F. Estimated accounts of consumers with incomes between \$5,000 and \$100,000 D×E.....	663
G. Estimated deposits of consumers having incomes of less than \$5,000 D—F.....	2, 988
H. Percent of total deposits held by consumers with incomes of less than \$5,000 <sup>4</sup> .....	13. 7

<sup>1</sup> See ch. VI, table III, for individual accounts over \$100,000, see Laughlin Currie, loc. cit., p. 321.

<sup>2</sup> See *ibid.*, p. 320.

<sup>3</sup> 1929–28 based on National Bureau of Economic Research, national income produced less income payments to individuals (including noncorporate business savings); 1929–35, Department of Commerce estimates of national income produced less income paid out, less noncorporate business savings.

<sup>4</sup> Percent of item G to total deposits 21,860 million dollars. (See table III, ch. VI.)

## 16. Corporate Funds Derived from Operations and Available for Capital Formation, 1926–35

The data on which chart IX of chapter VI is based are shown in table XVII.

TABLE XVII.—*Corporate funds derived from operations and available for capital formation, 1926–1935*

(Billions of dollars)

Year	Depreciation and depletion on all corporations	Corporate savings <sup>1</sup>	Funds available for capital formation <sup>2</sup>
1926.....	3.8	1.2	5.0
1927.....	3.8	.3	4.1
1928.....	4.1	1.4	5.5
1929.....	4.4	1.4	5.8
1930.....	4.4	—3.9	—1.5
1931.....	4.3	—5.9	—2.5
1932.....	3.9	—6.1	—2.5
1933.....	3.7	—2.8	.9
1934.....	3.7	—2.1	1.6
1935.....	3.7	—1.2	2.5

<sup>1</sup> *Statistics of Income*, Bureau of Internal Revenue, for respective years.

<sup>2</sup> 1929–28 based on National Bureau of Economic Research, national income produced less income payments to individuals (including noncorporate business savings); 1929–35, Department of Commerce estimates of national income produced less income paid out, less noncorporate business savings.

<sup>3</sup> Depreciation and depletion plus corporate savings.

## 17. New Capital Issues, 1919–37

The data upon which chart X of chapter VI is based are presented in table XVIII. These data which represent the amount of money expended by governments and corporations for new capital issues in the United States for the years of the period 1919 to 1937, were compiled by the *Commercial and Financial Chronicle* and reported in the *Survey of Current Business*. An important fact that should be noted in connection with the data is that the amount expended for new real investment, i. e., “chiefly additions to fixed plant and equipment and all types of inventories” is considerably less than the amount reported by the *Chronicle* for new capital issues. Included within the *Chronicle*’s classification of new capital issues are issues which involve transactions of a purely financial character. Thus it has been estimated by George A. Eddy<sup>2</sup> that real investment issues amounted in 1929 to approximately one-fourth of the total new capital issues as reported by the *Commercial and Financial Chronicle*.

TABLE XVIII.—*New capital issues, 1919–37<sup>1</sup>*

(Millions of dollars)

Year	Total corporate new capital issues, excluding investment trusts, holding companies, etc.	Total governmental new capital issues, including Federal, State, and municipal issues	Total corporate and governmental new capital issues
1919.....	2, 303	988	3, 291
1920.....	2, 710	672	3, 382
1921.....	1, 823	1, 321	3, 144
1922.....	2, 336	1, 421	3, 757
1923.....	2, 762	1, 380	4, 142
1924.....	3, 322	1, 559	4, 881
1925.....	4, 086	1, 521	5, 607
1926.....	4, 286	1, 435	5, 721
1927.....	5, 216	1, 562	6, 778
1928.....	5, 293	1, 443	6, 736
1929.....	6, 417	1, 418	7, 835
1930.....	4, 711	1, 521	6, 232
1931.....	1, 759	1, 310	3, 069
1932.....	324	829	1, 163
1933.....	159	547	706
1934.....	139	1, 208	1, 347
1935.....	402	1, 005	1, 407
1936.....	1, 202	757	1, 959
1937.....	1, 194	884	2, 078

<sup>1</sup> These figures exclude issues which specifically indicate that they are for refunding purposes and those issued by companies that can clearly be designated investment trusts, trading and holding companies. In spite of the exclusion of such issues, a large part of the funds appear to have been used for the retirement of outstanding issues, purchase of securities, the purchase of property, and the addition to money balances; only a part was used to finance capital formation. The data are shown here only to emphasize the wide swings in funds derived from new security issues.

Source: Based on data compiled by the *Commercial and Financial Chronicle* as reported in the *Survey of Current Business*, February 1938, pp. 11–20, and May 1938, pp. 17–20.

## 18. Distribution of Economic Units and Number of Persons Employed in the American Economy, 1937

Data on the number of economic units and the corresponding employment from which it would be pos-

<sup>1</sup> George A. Eddy, “Security Issues and Real Investment in 1929,” *The Review of Economic Statistics*, May 1938, pp. 79–91.

sible to distribute the economic units and employment by the number employed are quite incomplete and unsatisfactory. The data collected by the Social Security Board for industry and the Interstate Commerce Commission for railways are reasonably accurate and complete. In the case of agriculture the data are less satisfactory, while for the remaining segments, particularly the services, the available data are very sketchy.

The Social Security Board compiles data for many industries under the old-age insurance program on employer returns and employee wage items, which it has grouped in a frequency distribution according to the number of wage items per employer return.<sup>6</sup> The returns covering the period July to December 1937 were used here in making estimates. However, there is a considerable amount of duplication in the employee wage items since over the 6 months' period the same individual may be reported by more than one employer. Some employees who are ordinarily attached to industries other than those reporting to the Social Security Board may also appear in the returns. Finally, some who would ordinarily be considered as unemployed might also appear. Thus, the Social Security Board estimates that there were about 32.5 million different wage earners represented during the latter half of 1937 by the 37.1 million wage items reported by the 1.7 million employer returns to the board. This latter figure overstates the actual number of economic units as the term is defined in chapter VII. This is due to the fact that all corporate subsidiaries make separate employer returns. For example, General Motors Corporation was represented by 54 or more employer returns. This has the effect of understating both the number of economic units and employees in the 10,000 and over class, appearing in table 1 of chapter VII, while overstating both in the classes under 10,000; the net effect being an overstatement of employer units.

The number of wage items reported to the Social Security Board was adjusted in each class, shown in table 1 of chapter VII, to approximate the actual number employed. This was done in each class by applying the proportion of the total number employed as estimated by the Social Security Board to the corresponding number of wage items, i. e., 87.6 percent. There was no basis for making a corresponding adjustment in the number of employer returns and so in the 10,000 and over class the number of employer returns is probably slightly larger than it would be if the distribution were based on the actual employment.

The data covering railroads, published by the Interstate Commerce Commission,<sup>7</sup> are perhaps the most

satisfactory of any for the purposes at hand. The Commission reported, for the calendar year 1936, the average number of employees for each class 1 steam railway company, from which a frequency distribution of employees and employer companies according to the number of employees per company was derived. Although 1936 data were used, as the 1937 report was not yet published, the difference in the total number of employees and companies for the 2 years is relatively insignificant.

The distribution of agricultural employment and number of farms is based on a frequency distribution of hired labor according to the number per farm,<sup>8</sup> since no data are available relating to the combination of family and hired labor. This has necessitated making certain assumptions in order to approximate a distribution for total engaged. It has been assumed that farms employing four hired laborers or less would not individually aggregate more than five laborers—family and hired. This assumption is not unreasonable as the average number of family workers per farm reporting hired workers is 1.3. The use of this assumption resulted in approximately 6.8 million farms, engaging 11.9 million persons, falling in the 1 to 5 persons employed class, and about 41,300 farms, engaging about 356,000 persons, which were involved in the gainful activity of over 5 persons per farm. There are other limitations to these data, however, that necessitate their being used with the greatest caution. For instance, the census reports family and hired workers as of the first week in January 1935, only. Obviously, this can be only a crude approximation of the average number employed during 1937.

The total number of employees in the Federal Government during 1937 was estimated by the Department of Commerce to have been about 1.2 million. This number was allocated to the class, 10,000 and over, as the Federal Government is counted as one economic unit.

The total number of State employees during 1937 was estimated by the Department of Commerce to have been about 367,000. In addition, there were about 59,000 employees engaged in public education. The 426,000 engaged in State employment and the 48 States were apportioned in a frequency distribution by means of a sample of 28 States obtained from the Department of Commerce.

The total number of county employees during 1937 was estimated by the Department of Commerce to have been about 805,000, of which 506,000 were engaged in public education. The 805,000 employees and the 3,071 counties were apportioned in a frequency distribution on the basis of a sample of 280 counties collected by the Department of Commerce.

<sup>6</sup> John J. Corson, *Wages and Employment Under the Old-Age Insurance Program*, Social Security Board, October 1938, table 2.

<sup>7</sup> Interstate Commerce Commission, *Statistics of Railways in the United States*, 1936.

<sup>8</sup> U. S. Census of Agriculture, 1935, vol. III, p. 164.

The total number of municipal and rural incorporated places in 1930 amounted to 16,598 according to the *U. S. Census of Population, 1930*, volume I, page 14. These incorporated places employed a total of about 1,332,000 employees, of which about 635,000 were engaged in public education. In order to estimate a frequency distribution of employees and incorporated places, the *Census of Population* was used as a basis. In volume I, page 14, of the *1930 Census of Population* there appears a table of the population of the United States in groups of cities classified according to size. Using the Department of Commerce's sample of municipal places and the data from the *Census of Population* as a basis, it was estimated that 13 cities of 500,000 population or over in 1930, employed over 10,000 city employees in 1937; likewise that the 80 cities of from 100,000 to 500,000 population employed between 1,000 and 9,999 persons; that the 283 cities of from 25,000 to 100,000 population employed between 300 and 999 persons; and that the remaining some odd 16,220 places of under 25,000 population employed between 6 and 299 persons. The reason for not using solely the sample compiled by the Department of Commerce is because of its practically complete coverage of larger cities which would have caused, if it had been used, too large a proportion of the employees and incorporated places being placed in the class of 10,000 and over.

The data on private education concerning the number of economic units, or in this case schools, are somewhat unsatisfactory. The best estimate available for the number of private schools covers the year 1933-34 in which there were about 17,804.<sup>9</sup> The total employment in private schools during 1937 was estimated by the Department of Commerce to have been about 216,000. It was assumed arbitrarily that all the school units employed between 6 and 299 persons or an average of about 12 per unit.

The data on services are most incomplete of all, there being none on the number of economic units. The Department of Commerce estimated that there were about 3,193,000 professional and domestic service employees in 1937. It was assumed that most of these employees worked in small units which did not employ more than 5 persons per unit. A reasonable guess as to the number of such units would appear to be between 1,500,000 and 2,000,000, which was the range used in the summary table appearing in table I of chapter VII.

## 19. Employment in Governmental Units, 1935

The employment shown for 20 governmental units in table II of chapter VII have been derived from the following sources:

Employment for Federal Government and the

<sup>9</sup> U. S. Department of the Interior, *Biennial Survey of Education, 1932-35*, p. 2

United States Post Office represent equivalent full-time employment as estimated by the National Income Section of the Department of Commerce. The employment for State and municipal governments are also on an equivalent full-time basis. In each case the basic data were obtained from the unpublished material of the National Income Section of the Department of Commerce. These data were then adjusted to include public education by the addition of the respective employment in public education, estimated by the United States Office of Education (*Statistics of City School Systems, 1935-36*, page 28; *Statistics of State School Systems, 1935-36*, page 73; the data which were not available in these publications were obtained from the work sheets in the Office of Education).

## 20. Prices in Commodity, Labor, and Security Markets, 1913-1937

Table XIX gives the data and the sources for the material presented in charts I and II of chapter VIII.

TABLE XIX.—Prices in commodity, labor and securities markets, 1913-37

[1926=100]

Year	Whole-sale prices <sup>1</sup>	Com-posite index of wages <sup>2</sup>	Index of securi-ties prices <sup>3</sup>	Cost of living <sup>4</sup>	Weekly earn-ings in manu-facturing <sup>5</sup>	Per capita annual salaries <sup>6</sup>	Bond prices <sup>7</sup>	Stock prices <sup>8</sup>
1913.....	72.1	45.0	62.0	57.1	47.2	49.9	99.0	43.1
1914.....	70.3	45.4	61.1	58.2	46.7	49.8	99.5	41.4
1915.....	71.8	45.8	63.3	59.2	46.2	48.3	98.3	45.3
1916.....	78.3	49.2	69.9	63.4	50.9	51.3	99.8	53.6
1917.....	121.3	55.7	63.7	73.3	58.2	59.2	95.9	47.1
1918.....	135.6	68.6	58.9	87.7	72.8	67.7	88.8	43.5
1919.....	143.1	80.4	63.5	100.5	87.0	75.4	88.4	50.7
1920.....	159.4	97.6	57.6	115.6	105.6	88.2	80.0	46.1
1921.....	100.8	89.8	53.9	103.0	85.4	87.1	81.8	39.6
1922.....	99.8	86.5	63.7	96.7	87.3	83.9	93.1	48.5
1923.....	103.9	92.9	64.1	98.4	93.6	86.6	92.4	49.5
1924.....	101.3	96.0	66.7	98.6	95.0	89.1	94.6	52.2
1925.....	106.9	96.5	75.3	101.2	97.4	91.3	96.7	64.3
1926.....	103.2	98.2	80.0	102.0	98.5	94.7	99.1	71.6
1927.....	98.5	99.6	90.4	100.0	99.0	97.9	101.2	84.9
1928.....	99.8	100.5	115.4	99.0	100.0	103.5	100.5	107.5
1929.....	98.4	101.6	123.5	99.0	102.6	104.0	98.2	136.5
1930.....	89.2	101.3	105.2	96.5	92.9	104.9	101.0	107.4
1931.....	75.4	97.0	77.9	88.1	81.3	99.1	97.4	67.9
1932.....	68.9	86.3	50.0	79.4	61.3	86.6	75.3	34.9
1933.....	68.0	83.9	58.2	75.4	63.7	81.3	83.4	45.2
1934.....	77.3	93.3	67.5	78.2	72.3	83.6	98.0	51.9
1935.....	82.6	96.6	71.7	80.2	80.0	84.0	101.7	56.2
1936.....	83.4	98.1	89.8	81.2	88.5	85.6	109.3	79.7
1937.....	89.1	106.1	87.6	83.9	97.4	93.8	102.0	80.2

<sup>1</sup> Bureau of Labor Statistics' index of wholesale prices of all commodities.

<sup>2</sup> The Federal Reserve Bank of New York index. It is a combined index of hourly earnings, weekly wages, monthly wages, and annual salaries. Covers a sample of the entire economy.

<sup>3</sup> Index of stock prices and bond prices weighted by ratio of capital stock to funded debt as shown by statistics of income, 1926-34, for corporations.

<sup>4</sup> Bureau of Labor Statistics' index of cost of living.

<sup>5</sup> Based upon Paul H. Douglas data, 1913-18 and National Industrial Conference Board, 1919-37.

<sup>6</sup> Based upon National Bureau of Economic Research data, 1913-28, and Department of Commerce data, 1929-37.

<sup>7</sup> Standard Statistics' prices of "45 domestic corporate issues."

<sup>8</sup> Standard Statistics' index of the price of 419 stocks (347 industrials, 40 utilities, and 32 rails), listed on the exchange. Data for 1914-17, New York Times stock prices linked to Standard Statistics.

## 21. Wholesale Prices and Hourly and Weekly Earnings in Selected Industries, 1926-37

Table XX gives the data upon which chart IV of chapter VIII is based. The average weekly earnings

TABLE XX.—Hourly and weekly earnings, and wholesale prices in automobile, rayon, and knit goods manufacturing industries, 1926-37

Year	Automobiles			Rayon			Knit goods		
	Hourly earnings (cents per hour) <sup>1</sup>	Weekly earnings (dollars) <sup>1</sup>	Wholesale price index (1926=100) <sup>2</sup>	Hourly earnings (cents per hour) <sup>1</sup>	Weekly earnings (dollars) <sup>1</sup>	Wholesale price index (1926=100) <sup>2</sup>	Hourly earnings (cents per hour) <sup>1</sup>	Weekly earnings (dollars) <sup>1</sup>	Wholesale price index (1926=100) <sup>2</sup>
1924.....	65.9	31.43	100.0			100.0	43.7	19.71	100.0
1925.....	67.6	31.36	96.1			82.9	45.9	21.58	91.9
1926.....	68.1	32.51	97.1			85.6	46.3	21.67	90.1
1929.....	69.5	32.48	100.0	42.1	20.79	68.4	49.6	23.58	88.5
1930.....	68.7	27.77	94.0	41.1	19.63	57.8	47.6	20.65	80.0
1931.....	68.1	25.13	89.5	40.3	18.47	41.2	44.3	18.66	60.9
1932.....	60.9	18.50	87.1	39.8	17.30	35.3	39.7	15.26	51.6
1933.....	60.9	21.84	83.2	42.3	17.43	32.9	39.1	15.22	58.9
1934.....	73.0	24.40	87.8	50.3	18.61	31.8	52.5	18.14	63.2
1935.....	75.5	28.68	84.1	51.4	19.48	31.2	52.0	17.96	61.8
1936.....	77.5	29.64	83.3	53.2	20.54	31.7	54.1	18.29	63.2
1937.....	90.1		89.3	61.8		32.2	55.7		65.1

<sup>1</sup> National Industrial Conference Board, *Wages, Hours, and Employment in the U. S. A., 1914 to 1936*; and subsequent Service Letters of the Board.<sup>2</sup> Bureau of Labor Statistics Wholesale Prices.<sup>3</sup> See appendix 6, table I, compiled from Bureau of Labor Statistics' data.<sup>4</sup> Interpolated between 1929 and 1932 by a straight line interpolation.

for each year is also given, but is not shown on the chart.

## 22. Price and Production Indexes

### for Ten Major Industries, 1929, 1932, and 1937

TABLE XXI.—Price and production indexes for 10 major industries

Industrial group	Prices (1926=100) <sup>1</sup>			Production (1929=100) <sup>2</sup>		
	1929	1932	1937	1929	1932	1937
Agricultural implements.....	98.7	84.9	94.0	261.5	100	261.7
Motor vehicles.....	106.7	94.1	96.0	135	35	121
Cement.....	94.8	77.2	95.5	114	51	78
Iron and steel.....	94.9	79.4	98.2	130	31	118
Automobile tires.....	54.5	41.1	55.8	135	78	109
Textile products.....	90.4	54.9	76.3	115	83	111
Food products.....	99.9	61.0	85.5	97	87	186
Leather products.....	109.1	72.9	104.6	104	85	113
Petroleum products.....	71.3	45.1	60.5	168	140	202
Agricultural commodities.....	104.9	48.2	86.4	101	100	108

<sup>1</sup> Bureau of Labor Statistics' *Wholesale Prices*, 1933, p. 12; 1937, p. 3.<sup>2</sup> Federal Reserve Board's indexes of production, except as elsewhere specified.<sup>3</sup> Based on annual production of farm equipment as compiled by the Bureau of the Census, U. S. Department of Commerce. Figures are expressed in millions of 1926 dollars, divided by Bureau of Labor Statistics price index.<sup>4</sup> Interpolated from gross income of corporations manufacturing agricultural implements, given in the *Statistics of Income*, Bureau of Internal Revenue (value in millions of 1926 dollars).<sup>5</sup> Constructed from 3 food indexes as given by the Federal Reserve Board: (1) slaughtering and packing of meats—weight 0.65; (2) wheat flour—weight 0.18; (3) sugar melting—weight 0.17.<sup>6</sup> *Agricultural Statistics*, 1938, p. 428. Includes both crops and livestock. Index base, 1924-26=100.TABLE XXII.—Comparison of price changes and production changes during depression and recovery for 10 major industries <sup>1</sup>

Industry group	Percent drop, 1929-32		Percent recovery, 1932-37	
	Prices	Production	Prices	Production
Motor vehicles.....	12	74	2	64
Agricultural implements.....	14	84	9	84
Cement.....	16	55	20	24
Iron and steel.....	16	76	20	67
Automobile tires.....	25	42	27	24
Leather and products.....	23	18	20	27
Petroleum products.....	36	17	21	37
Textile products.....	39	28	34	24
Food products.....	39	10	24	4
Agricultural commodities.....	54	1	36	8

<sup>1</sup> Based on table I, above. The decline in 1929-32 is expressed as a percent of 1929. The recovery in 1932-37 is expressed as a percent of 1929.

Table XXI gives indexes of prices and production for ten industries for the three years, 1929, 1932, and 1937. Table XXII gives the percent changes in prices and production during depression and recovery.

## 23. Monthly Price Indexes for Ten Price Frequency Groups, 1926-1938

Chart XXVI of chapter VIII gives the price indexes for 5 frequency groups. These 5 groups are derived from a combination of 10 frequency groups shown in appendix 2, table I, with certain modifications which are described below. Group A consists of a geometric average of groups I and II; group B of groups III and IV; group C of groups V and VI; group D of groups VII and VIII; and group E of IX and X. The indexes for the 10 frequency groups are shown in the table below by months from 1926 to 1938. The total number of Bureau of Labor Statistics' price items used in constructing these indexes is 731. This number differs from the number of items used in deriving the annual indexes for the frequency groups shown in chart XXV and given in appendix 2, table I, in that 163 separate items were used in place of the 49 composite items shown in table I. For example, in the annual index, 1 butter composite item was used to represent 18 separate butter items; in the indexes presented in table XXIII, the 18 butter-price series were used instead of the 1 composite representing these series. The difference of 114 items between the 2 series is therefore due to the inclusion of the individual items making up the composites in the monthly series.

The number of items used in each of the 10 groups is as follows: Group I—76; group II—73; group III—74; group IV—70; group V—76; group VI—72; group VII—77; group VIII—73; group IX—77; and group X—63. The price index for each group was obtained by averaging the logarithms of the individual price indexes corresponding to the items within the group.

TABLE XXIII.—Price indexes for ten frequency groups<sup>1</sup> (531 commodities) by months for the years 1926-38  
[1926-29=100]

Year and group	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>1926</i>												
I.....	100.8	100.8	100.8	100.6	100.7	100.7	100.9	101.1	101.2	101.3	101.2	101.2
II.....	102.6	102.8	102.7	102.7	102.8	102.9	102.9	102.5	102.6	102.7	102.6	102.3
III.....	101.0	101.2	101.2	101.2	101.2	102.6	102.3	102.5	102.4	102.2	102.1	101.1
IV.....	101.7	101.1	101.6	102.0	102.6	102.6	101.7	101.7	101.6	101.7	101.3	101.3
V.....	106.4	105.9	105.5	105.4	101.8	101.6	103.8	101.4	101.2	101.4	101.7	101.9
VI.....	105.3	104.3	101.1	103.5	102.1	101.6	100.9	100.1	100.7	100.2	100.3	99.8
VII.....	101.2	103.5	102.5	101.7	100.8	101.7	101.0	100.7	100.7	100.5	99.3	98.4
VIII.....	113.1	110.7	107.3	106.5	103.7	103.7	102.6	102.5	103.9	102.3	99.9	98.4
IX.....	117.1	113.0	108.5	106.2	106.0	105.6	105.0	102.6	102.9	102.1	100.7	100.6
X.....	107.5	103.8	100.0	98.8	98.9	97.3	96.8	96.2	98.3	99.0	97.8	99.1
<i>1927</i>												
I.....	100.4	100.4	100.3	100.3	100.3	100.2	100.1	100.0	100.0	100.0	100.0	100.0
II.....	100.7	100.8	100.6	100.6	100.6	100.6	100.3	100.3	100.3	100.2	100.4	100.2
III.....	100.5	100.3	99.9	100.1	100.1	100.0	100.2	100.0	100.2	100.0	100.0	100.0
IV.....	100.3	100.2	99.7	99.4	98.9	99.2	99.4	99.9	100.3	99.9	99.8	99.8
V.....	102.5	102.1	101.8	101.7	100.7	99.8	100.1	100.3	100.3	100.0	99.5	99.6
VI.....	100.3	100.3	100.2	100.1	99.4	98.8	98.2	99.1	100.3	99.8	99.1	98.6
VII.....	98.7	98.6	98.0	97.5	97.0	97.1	97.1	98.5	99.7	100.1	100.5	100.4
VIII.....	98.4	98.1	98.2	97.3	96.8	97.2	96.8	97.8	97.5	96.9	96.1	96.1
IX.....	101.0	99.8	97.9	98.2	97.7	97.2	95.1	96.0	96.9	98.8	98.7	98.4
X.....	99.1	98.1	96.2	96.8	97.8	98.3	98.3	99.8	102.0	102.2	102.9	103.8
<i>1928</i>												
I.....	99.9	100.0	100.0	100.2	100.2	100.2	99.5	99.5	99.5	99.5	99.5	99.5
II.....	99.8	99.8	99.2	98.8	98.9	98.8	98.8	98.8	98.8	98.7	98.4	98.3
III.....	99.9	99.9	99.9	99.9	99.9	99.9	99.4	99.4	99.4	99.4	99.1	98.5
IV.....	98.9	99.3	99.6	99.2	99.4	99.4	99.4	99.6	99.7	99.5	99.4	99.2
V.....	98.7	98.6	98.6	98.7	97.8	97.7	97.7	97.8	97.6	97.6	98.2	98.7
VI.....	99.7	100.1	99.8	99.4	99.3	99.9	100.2	100.2	100.3	100.6	100.5	99.5
VII.....	99.4	100.0	99.1	99.2	99.4	99.4	99.4	99.4	99.2	100.0	101.4	102.2
VIII.....	98.6	98.3	97.7	99.3	100.3	99.0	98.5	99.3	100.3	99.9	99.6	99.6
IX.....	99.1	98.4	99.6	100.3	100.6	97.7	98.4	98.3	101.1	96.8	100.9	100.3
X.....	101.8	102.9	103.9	105.6	106.9	103.3	101.8	99.0	100.6	99.5	99.7	99.6
<i>1929</i>												
I.....	99.2	99.2	99.2	99.3	99.0	99.0	99.2	99.2	99.2	98.5	98.5	98.6
II.....	98.5	98.4	98.5	98.5	97.8	97.7	97.4	97.4	97.4	97.4	97.7	97.7
III.....	97.9	97.4	97.9	97.4	97.3	97.3	97.4	97.3	97.3	97.5	97.5	97.5
IV.....	98.0	98.7	99.0	98.5	98.4	98.3	98.3	98.2	98.2	98.0	97.6	97.6
V.....	98.1	97.4	97.1	97.0	96.8	96.8	95.9	96.1	96.1	95.8	95.6	95.3
VI.....	99.5	99.6	99.1	99.8	99.9	99.8	98.9	99.9	97.6	97.0	96.6	96.3
VII.....	102.0	101.9	102.3	101.6	100.5	99.7	100.2	100.2	100.2	100.1	99.7	98.7
VIII.....	100.2	99.1	99.7	100.0	98.6	97.9	98.7	99.5	99.8	99.1	97.3	95.4
IX.....	100.7	101.7	100.9	97.9	95.0	94.4	97.2	97.9	98.6	96.3	92.3	90.4
X.....	100.4	100.7	98.5	95.9	93.7	94.8	100.2	100.8	102.6	100.8	99.9	96.0
<i>1930</i>												
I.....	97.9	97.9	97.9	97.9	97.7	97.8	97.8	97.8	97.8	98.0	98.1	97.6
II.....	97.0	96.9	96.5	96.0	95.9	95.8	95.3	95.1	94.9	94.9	94.7	93.9
III.....	96.3	96.5	96.4	96.3	96.2	95.8	95.3	94.5	93.4	92.8	93.1	92.3
IV.....	97.3	96.3	95.1	94.7	93.8	93.3	92.4	91.7	91.3	89.5	88.5	87.6
V.....	94.7	94.2	93.6	93.0	92.3	91.3	89.7	88.6	87.2	86.4	85.4	84.8
VI.....	95.6	95.2	94.3	93.4	92.3	90.9	88.7	87.8	86.9	86.6	85.5	84.8
VII.....	96.1	96.4	94.9	92.8	90.5	89.2	87.3	86.0	85.5	83.9	81.7	80.7
VIII.....	94.0	91.9	89.9	89.2	87.6	84.2	79.2	77.6	77.7	76.4	74.6	72.6
IX.....	88.2	85.8	82.7	82.5	79.2	76.2	72.7	73.3	71.5	69.8	68.8	65.7
X.....	92.2	88.9	85.4	86.5	82.6	78.1	74.3	76.3	75.5	72.3	69.1	65.6
<i>1931</i>												
I.....	97.5	97.4	97.4	97.1	97.0	97.0	96.8	96.4	95.7	95.3	95.3	95.1
II.....	92.9	92.6	92.4	91.2	90.6	90.6	90.1	89.2	89.1	88.2	88.0	87.5
III.....	90.9	90.0	89.7	89.7	89.2	89.1	88.3	87.5	87.4	86.7	86.0	84.2
IV.....	85.6	84.9	84.3	84.0	83.6	82.5	81.7	81.4	81.0	79.9	79.1	78.0
V.....	82.6	81.5	81.0	80.0	79.7	79.2	78.6	77.9	77.0	76.1	75.4	74.7
VI.....	83.5	83.1	82.5	81.3	80.4	79.5	78.4	77.9	77.1	76.8	76.2	75.8
VII.....	79.2	78.1	77.0	75.5	74.0	71.4	70.6	70.5	69.7	67.6	66.7	66.1
VIII.....	71.5	70.3	70.1	69.1	66.7	63.8	63.2	61.7	59.9	57.5	57.7	56.6
IX.....	63.5	61.0	61.1	58.4	55.8	54.2	53.3	55.0	52.9	52.5	53.1	50.6
X.....	63.5	60.6	61.8	59.0	56.7	55.3	54.9	54.8	54.7	54.1	56.1	52.4
<i>1932</i>												
I.....	94.5	94.4	94.4	94.3	93.3	93.2	92.8	92.7	93.0	92.2	91.9	91.7
II.....	85.7	85.7	85.7	85.6	85.2	85.2	84.3	83.6	83.0	82.0	82.9	82.4
III.....	80.7	80.6	80.7	80.7	80.6	80.6	80.6	80.6	80.6	80.6	80.6	80.6
IV.....	77.3	76.7	76.4	75.9	75.4	74.7	74.0	73.1	73.1	73.0	72.3	72.0
V.....	72.5	71.6	71.3	69.7	68.4	67.7	65.8	65.8	66.5	66.9	66.1	65.3
VI.....	71.2	71.2	71.2	71.2	70.9	70.9	69.1	67.9	69.1	69.2	67.7	67.7
VII.....	64.4	63.4	62.8	62.0	60.9	59.7	58.3	58.4	59.8	60.0	59.0	58.2
VIII.....	54.6	53.3	52.6	51.3	49.1	47.6	46.8	48.5	50.6	49.8	48.7	47.1
IX.....	48.1	46.1	46.2	44.4	41.6	40.1	41.2	41.4	45.4	44.0	43.2	41.6
X.....	48.2	48.2	47.0	44.8	41.2	40.2	41.3	41.3	43.8	43.5	44.0	41.7

<sup>1</sup> The monthly indexes are based on 731 price items of the Bureau of Labor Statistics. These 731 items consist of the 647 price items listed in appendix 2, table 1, and classified in each of the 10 frequency groups in table 1, less 60 of these 647 items, which are composite items and for which were substituted the 165 component items of the 49 composites. The following is the list of the 163 items by code numbers and the frequency group in which each item belongs: the name and classification of each item is given in appendix 2, table 1: group I: 425-426-702; group II: 565-566-703; group III: 100-102-194-266-266-567; group IV: 166-194-199-201-341-342-351-352-568-668; group V: 195-200-202-205-207-210-265-266-267-268-667; group VI: 204-201-271-272-330-330-331-339-339-457-458-574-575-576-670-671; group VII: 59-60-61-66-67-70-222-222-302-270-276-47-48-49-102-666-668; group VIII: 19-33-40-112-55-104-106-141-122-234-293-288-325-526; group IX: 13-18-21-24-32-55-56-63-64-70-74-75-76-79-80-83-84-87-88-103-108-110-111-112-271-282-284-285-289-300-306-308-309-361-752-753; group X: 2-3-6-7-8-9-10-11-14-15-16-17-22-23-24-25-26-27-28-31-57-68-69-71-72-73-77-78-81-82-85-86-105-106-107-212-213-231-301-302-307-359-751.

TABLE XXIII.—Price indexes for ten frequency groups (731 commodities) by months for the years 1926-38—Continued

Year and group	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>1923</i>												
I.....	91.6	91.2	91.1	91.5	91.5	91.5	91.5	91.8	92.0	92.9	90.0	93.1
II.....	81.4	80.7	80.8	80.5	79.9	80.0	81.4	82.8	84.6	86.2	86.2	86.4
III.....	78.2	77.8	77.2	76.8	75.9	78.3	81.2	83.2	85.2	86.3	87.3	88.4
IV.....	71.0	70.6	70.3	70.1	71.1	73.6	76.8	80.5	81.8	82.6	83.3	83.7
V.....	63.9	63.1	62.8	62.3	63.9	67.1	71.1	75.3	77.2	77.1	77.1	77.1
VI.....	67.0	66.1	66.0	66.1	68.9	73.3	77.3	82.1	85.5	84.2	84.0	84.3
VII.....	57.1	55.5	55.6	56.3	60.0	64.0	68.8	71.9	73.9	73.0	73.5	73.5
VIII.....	45.9	44.6	45.8	47.5	53.9	58.3	64.6	66.7	66.2	65.3	65.6	66.3
IX.....	41.2	39.4	40.7	41.7	48.9	53.9	61.0	59.2	58.2	56.7	57.0	55.3
X.....	40.0	37.9	40.0	43.6	49.9	54.0	62.2	57.2	57.7	55.5	56.7	54.1
<i>1924</i>												
I.....	93.3	93.4	93.5	93.5	94.7	94.5	94.6	94.7	94.8	94.7	94.7	95.3
II.....	87.0	87.1	87.1	87.5	87.7	87.8	87.2	86.3	86.7	86.2	86.1	87.3
III.....	88.2	88.1	88.1	88.9	88.7	88.6	88.2	87.4	87.1	86.9	86.7	87.5
IV.....	81.8	81.7	81.5	81.9	81.7	81.7	81.1	80.8	80.7	80.6	80.5	81.2
V.....	78.3	78.3	78.5	78.2	77.7	77.3	76.9	76.3	76.0	75.7	75.3	75.3
VI.....	83.4	83.1	83.6	83.1	84.2	84.5	83.8	83.3	83.5	83.2	82.7	82.7
VII.....	73.7	74.5	74.6	74.8	74.6	74.1	73.6	73.4	73.4	73.5	73.0	74.0
VIII.....	68.0	69.8	70.1	70.0	70.3	69.9	70.2	70.7	72.9	72.2	72.4	73.2
IX.....	57.3	61.2	60.9	59.5	58.7	58.9	58.8	62.1	63.3	62.0	63.4	64.8
X.....	56.9	60.5	60.4	58.3	59.6	62.2	61.7	66.2	67.7	67.0	68.8	70.3
<i>1925</i>												
I.....	95.4	95.8	95.6	95.2	95.4	95.5	95.4	95.3	95.4	95.3	96.0	96.0
II.....	85.8	85.6	85.6	85.4	85.2	85.1	85.0	84.6	85.6	85.6	85.6	85.6
III.....	86.3	86.3	86.3	86.2	86.3	86.3	86.2	85.9	86.2	86.2	86.2	86.2
IV.....	82.3	82.3	82.4	81.7	81.7	81.9	81.7	81.7	81.7	82.6	83.8	84.0
V.....	75.3	75.5	75.5	75.3	75.7	76.2	76.4	76.9	77.0	77.6	78.1	78.2
VI.....	82.9	83.1	83.3	82.8	82.4	82.8	82.7	83.0	83.3	83.3	83.1	82.9
VII.....	74.6	75.0	75.1	74.6	75.2	75.8	75.2	74.8	75.9	77.6	78.8	79.0
VIII.....	75.3	75.4	75.2	74.9	76.3	74.9	71.5	70.7	73.4	75.6	76.6	76.4
IX.....	68.0	68.2	68.8	67.2	66.1	64.6	63.7	65.0	67.5	69.7	71.3	71.5
X.....	73.8	74.6	70.8	74.0	70.5	69.7	67.4	67.9	70.3	73.1	74.2	74.6
<i>1926</i>												
I.....	96.5	96.5	96.5	96.2	96.0	95.9	95.9	95.9	95.8	95.5	95.3	95.4
II.....	86.0	86.1	85.8	85.7	85.8	86.2	86.4	87.1	87.1	87.1	87.4	87.6
III.....	87.8	87.7	87.5	87.6	87.6	87.2	87.1	87.1	87.1	87.6	88.5	88.5
IV.....	83.0	83.0	84.0	84.3	84.2	84.3	84.3	84.4	84.7	84.7	85.1	86.3
V.....	77.9	78.2	78.2	78.1	77.9	77.7	77.5	77.6	77.8	78.3	78.6	80.2
VI.....	82.2	81.9	81.7	81.7	81.1	81.2	82.2	82.5	83.0	83.7	84.3	86.1
VII.....	78.8	78.4	77.8	77.8	77.6	77.0	77.0	77.0	78.5	80.3	82.3	84.0
VIII.....	75.2	74.0	73.7	74.9	73.8	74.3	76.3	73.8	78.4	78.4	80.4	84.2
IX.....	70.6	69.6	66.6	67.4	65.5	67.6	71.9	74.5	74.1	74.0	76.2	79.7
X.....	73.3	73.8	69.5	68.6	66.1	68.5	75.1	78.5	78.6	78.4	79.9	84.1
<i>1927</i>												
I.....	95.7	96.3	96.7	97.2	98.8	99.0	99.1	99.2	99.2	99.2	100.0	99.9
II.....	88.2	88.7	89.3	89.4	90.5	91.1	92.0	92.7	92.5	92.5	92.7	92.7
III.....	90.1	90.7	91.5	93.7	94.5	94.5	94.7	94.9	95.0	94.3	94.2	93.2
IV.....	87.4	88.2	89.1	89.9	90.6	90.7	90.7	90.3	90.5	90.0	88.1	88.4
V.....	80.9	81.5	82.7	84.8	85.3	86.1	86.4	85.9	86.2	85.5	84.5	83.6
VI.....	88.7	89.8	91.8	92.8	93.0	92.7	92.9	92.8	92.0	91.4	89.9	88.4
VII.....	87.2	88.4	90.6	91.2	90.0	89.4	88.8	87.6	86.3	84.9	81.9	79.5
VIII.....	87.0	89.1	91.7	91.8	86.9	87.5	87.8	87.8	81.8	78.6	71.8	71.8
IX.....	82.3	82.0	84.5	82.0	80.4	78.6	78.9	76.3	74.8	72.9	69.5	67.5
X.....	86.2	85.1	87.3	86.7	83.2	80.3	80.1	76.4	77.0	73.3	69.7	68.2
<i>1928</i>												
I.....	94.3	94.3	97.5	97.5	97.4	96.9	96.6	96.8	96.5	96.2	94.7	94.7
II.....	92.9	92.9	93.1	92.8	92.8	92.9	93.4	92.3	92.6	92.5	92.3	92.3
III.....	95.6	92.8	92.5	92.3	91.3	91.2	90.5	90.3	90.0	90.0	90.1	90.0
IV.....	87.5	86.9	86.4	85.8	85.4	85.2	84.6	84.7	84.1	84.0	83.4	83.6
V.....	82.6	81.8	81.6	80.9	79.6	78.0	77.3	77.5	77.3	77.2	77.0	77.0
VI.....	87.6	86.5	85.3	83.4	82.7	81.5	80.7	80.9	81.9	81.8	82.0	82.0
VII.....	79.5	77.6	76.7	75.5	74.8	73.5	73.4	73.2	72.6	73.3	73.8	73.2
VIII.....	70.6	68.4	67.8	66.5	65.7	65.4	66.8	68.1	68.1	68.5	69.2	68.6
IX.....	65.9	63.9	63.7	61.4	60.4	60.5	61.6	59.1	58.8	59.9	61.4	61.2
X.....	67.4	65.2	64.0	60.9	59.3	59.5	59.7	57.5	58.3	58.9	59.5	60.5

## 24. Production Indexes Corresponding to the Five Price Frequency Groups, 1925-1935

This section describes the derivation of five indexes of production corresponding to the five price frequency groups shown in table XXIV.<sup>10</sup> A brief discussion is also given of the reliability of the production indexes derived.

<sup>10</sup> The National Industrial Conference Board has published recently (The Conference Board Bulletin, Vol. XIII, No. 5, Feb. 20, 1939) data based on production indexes corresponding to 264 commodities from the Bureau of Labor Statistics' wholesale price specifications for the years 1929 and 1933. For the 5 groups represented above production indexes have been used corresponding to 315 commodities, these commodities being represented one or more times in the list of the Bureau of Labor Statistics.

The price groups are arranged in order of frequency of price change, group A representing the price items having the least frequency of price changes and group E representing those with the greatest frequency of price changes. The actual price frequency range for each group is shown in chart XXV of chapter VIII.

For each of the five price groups an effort was made to get from available data, production series corresponding to as many price items as possible. The production series associated with each group were then combined to obtain a production index corresponding to the group. For reasons which appear below the correspondence between the price and production series

TABLE XXIV.—Price and production indexes for 5 price frequency groups, 1925-35  
(1926-29=100)

Year	Group A		Group B		Group C		Group D		Group E	
	Price	Production	Price	Production	Price	Production	Price	Production	Price	Production
1925.....	101.6	93.9	102.9	94.4	107.9	93.5	106.5	92.5	110.6	97.6
1926.....	101.2	95.3	103.3	96.1	103.4	100.3	101.8	100.3	103.0	99.2
1927.....	100.2	99.4	99.8	98.2	100.6	94.9	98.6	94.7	97.7	97.6
1928.....	99.8	97.8	99.2	100.1	98.12	96.6	99.6	99.2	99.9	103.3
1929.....	98.8	107.5	97.5	106.6	97.7	108.2	99.8	105.8	99.3	99.9
1930.....	197.0	89.2	94.7	93.9	90.7	89.4	88.9	92.6	79.5	99.1
1931.....	93.7	82.9	87.0	81.0	79.9	71.0	73.9	76.9	59.0	104.9
1932.....	180.5	51.0	79.3	71.6	70.1	58.8	62.0	61.9	46.3	100.3
1933.....	87.8	74.5	79.9	78.2	73.3	71.9	66.9	73.5	54.0	90.4
1934.....	191.2	68.2	86.0	81.3	81.2	76.8	75.6	82.1	66.4	74.9
1935.....	91.3	92.3	84.8	89.8	81.0	86.3	77.5	85.8	72.1	94.4
Percent coverage	50		65		90		85		80	

<sup>1</sup> Figures for intercal years for this group are less reliable than those for census years because suitable data for interpolation were not available.

NOTE.—Group A represents the group in which prices have changed the least, while Group E represents the prices changed most frequently. For details of the composition of the groups see ch. VIII and appendix 2.

was approximate throughout with a tendency for the production series used in group E to represent the price series better than was the case as one approached group A. The coverage of each of the final production indexes is discussed below along with the comments on the suitability of the production series used in constructing the indexes.

Many of the production indexes used are only approximate representations of the production of the commodities to which they correspond, and the production indexes are therefore subject to a number of qualifications.

While each price index is associated with a specific production index, which is defined in some detail, the best production index available without an exhaustive search of original compilation is generally a wide class including the proper item along with a great variety of other items selling within a large price range, and appealing to different types of customers. For example, the price index includes men's mocha gloves, unlined; but it is represented in the appropriate production index as all leather gloves for men, lined and unlined, including some inexpensive "utility gloves" and some costly fine gloves as well as "fad gloves" or "one season styles." Again, the production index taken to represent plain standard concrete blocks, 8 by 8 by 16 inches, includes all block and tile except roofing tile. The price index is for a cheap standard construction material for foundations and garages; but the production series includes many new and expensive tiles and floor blocks and a large volume of specialty blocks of many kinds. On the other hand, all of the wheat series are in the last group and the wheat production of the entire country was used in the production index.

A difficulty is presented in estimating the coverage by

estimating the yearly production of commodities in the price lists for which production series could not be obtained. The coverage is merely a ratio of the estimate of all the value of production included in the production index to the estimate of all the value of production that could have been included if the data had been available. When it is stated that the "coverage" of group A is almost one-half, it indicates that a little over half of the estimated value of the articles whose price series fall in group A were nowhere represented in the production index. The 45 or 50 percent which were represented were badly represented, as in the case of the gloves and the concrete blocks cited above. However, in group E, not only was the proportion of the estimated value not covered small (20 percent), but the 80 percent which was represented in the production index was, on the whole, well represented, as in the case of the wheat crop of the United States.

The production series which were used in the composition of the production indexes were derived from several sources. The production of manufactured products generally were obtained from the *Census of Manufactures*, United States Bureau of the Census. Ores and minerals were taken from *Minerals Yearbooks*, and *Mineral Resources of the United States*, United States Bureau of Mines. Agricultural commodities were obtained from *Agricultural Statistics*, United States Department of Agriculture, while products like tin, which are largely imported, were obtained from *Foreign Commerce and Navigation*, United States Department of Commerce.

All the production series went into the five production indexes in the form of values in 1926 dollars. The two principal methods of getting the series in this form were (1) weighting the series on actual production in physical units by the actual price in 1926 dollars; and (2) dividing the value of production in current dollars by the price relative on a 1926 base. The first method was used where possible.

In some cases the production was available for some years but not all; in these cases the production figures were used for the years for which they were available, and the missing years were filled in by using the deflated value figures. Interpolations were made by the use of an interpolating series. A scatter diagram was made between the series to be interpolated and the interpolating series, and a straight or curved regression line was drawn free hand. Ratios of the point to the regression line were plotted on a time scale and a smooth free-hand curve was drawn through the points obtained. Time was included as an independent variable where the introduction of time as a factor materially reduced the residuals.

After all of the series were expressed in terms of value

in 1926 dollars they were added and the resulting series was converted into a series of index numbers.

The five index series thus computed are the basic indexes of production. In practice, however, it was found necessary to employ another step. Because of the large number of series drawn from the *Census of Manufactures* and the lack of interpolating series for some of these, the odd years were represented by many more series than the even years. A link relative procedure of index construction would have had the effect of discarding all of the series in which the even years were missing. Therefore, a basic index was constructed for each group from the link relatives of the comparable data in successive census (odd) years. This index was interpolated, by the method described above, by an index based on the link relatives of comparable data in directly succeeding years. This type of chain index is useful where comparable data are available for only short periods. For example, the change in the schedule of the *Census of Manufactures* in 1933 offered no difficulty where the Census presented comparable data for the preceding and succeeding censuses.

After the odd-year index was filled in by interpolation from the series for all years the indexes were complete and it remained simply to put them on a 1926-29 base.

## **25. Holdings by the 250 Large Corporations of More Than 10 Percent of the Voting Stock of the 200 Largest Non-Financial Corporations**

The basic materials upon which table V in chapter IX is based were published by the Securities and Exchange Commission under the title, *Official Summary of Officers, Directors, and Principal Stockholders, as of December 31, 1935*, and by Moody's Investor's Service in *Moody's Investment Manuals, 1936*. For each of the 200 largest nonfinancial corporations in 1935 (listed in appendix 10) the total number of votes outstanding was obtained by multiplying the number of shares of each issue outstanding by the number of votes per share and adding the votes thus obtained. Then the holdings of corporations in each of the 200 nonfinancial corporations, which were listed in the *Official Summary*, were examined to determine whether any corporation held more than one-tenth of the computed votes outstanding.

For the purpose of measuring the number of votes outstanding as of December 31, 1935, due account was taken of contingency voting rights. It is a usual circumstance that preferred issues are without vote unless a specified number of dividends are in default. In these cases the dividend records of the corporations were examined and the number of possible votes computed accordingly. Shares reacquired and in the treasury of the

corporation were assumed to be without vote in all cases.

A vote was defined as a vote at the annual meeting of the shareholders on a general issue, i. e., on some matter other than the election of directors or the issue of new shares of some security. For both of these questions the voting power is often distributed very differently from what is found on votes for general issues of policy.

The results of this procedure yielded an incomplete tabulation. There were three major reasons for this:

(1) The Securities and Exchange Commission *Official Summary* edition of December 31, 1935, was the first of a series of periodic reports and was put out when some of the materials were not available. For the purposes of investors those which reported late could be reported in the monthly bulletin of January 1936. Hence the tabulation is probably incomplete because not all of the reports had come in from officers, directors, and principal stockholders.

(2) Not all of the 200 largest nonfinancial corporations were listed in the Securities and Exchange tabulation. Those which had no securities listed on national securities exchanges were not required to report to the Commission. In certain other cases reports were not required, e. g., railroads who filed certain reports with the Interstate Commerce Commission were exempt.

(3) The companies which were required to report were asked to indicate the holdings of all equity securities in the corporation by officers and directors of the corporation and also by any individual or corporation which held more than ten percent of any equity issue. However, if a person filed for any of these reasons he was required to state his complete holdings in the company. It is obvious, then, that if any officers or directors or holders of more than ten percent of any one issue held more than ten percent of the outstanding votes, the above procedure would have detected them. However many persons held more than ten percent of some issue which was, at the date of the report to the Securities and Exchange Commission, without voting power and these, of course, are not tabulated in table V. And, conversely, it is very likely that some persons or corporations held ten percent or less of more than one issue of voting stock and was not an officer or director in the corporation whose equity securities he held. In that case he would have had no reason to report his holdings even though he may have held more than ten percent of the votes that could be cast at the annual meeting.

For these three reasons, table V of chapter IX, above, is not comprehensive.

In some of the cases it was noted in table V of chapter IX that the proportionate interest of the owner in the holdings of an indirect owner were not shown in the



report of the Securities and Exchange Commission. This was permitted explicitly by a ruling of the Commission so that the reports would not disclose the proportion of equity in a partnership or similar association which various individuals held.

The Securities and Exchange Commission also made explicit provision in the rules for reporting holdings of equity securities for cases in which there was doubt as to whether an individual actually owned a certain amount of stock. For example, in the case of a person

who has to report for other reasons: he may be a contingent beneficiary of a trust which holds equity securities in the company whose report already includes his name. For this situation a rule was made permitting any person to report without admitting beneficial interest in the securities. The precise legal interpretation of this term is not yet available but it presumably offers protection of some kind to persons not wanting to state that they actually own certain amounts of securities.



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